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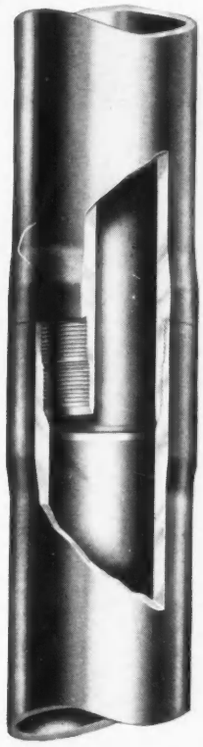
The OIL WEEKLY

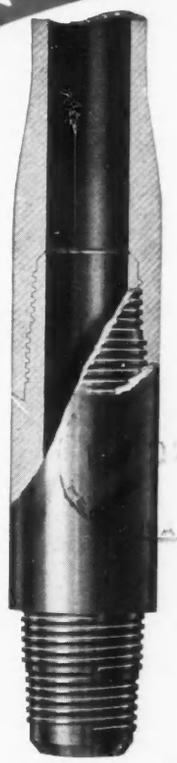
OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCERS AND PIPE LINE MEN

THE WEEK'S NEWS INTERPRETED

DRILL PIPE & CASING JOINTS FOR EVERY OIL FIELD USE!





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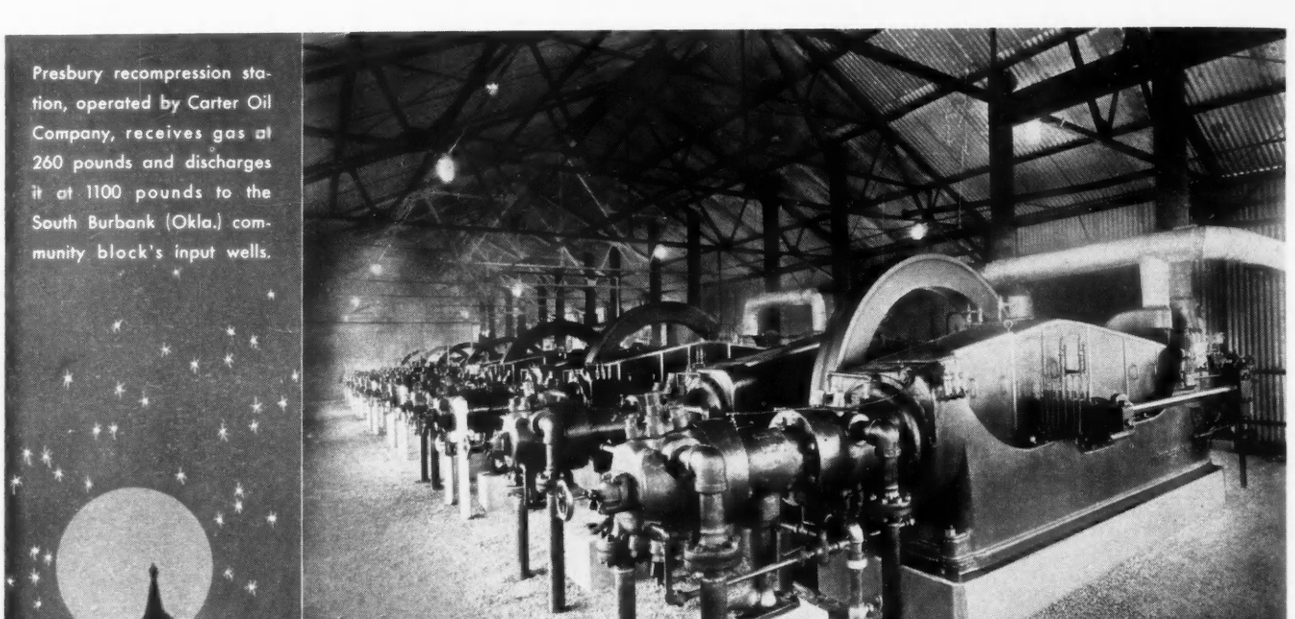
VOLUME 83 NOVEMBER 30, 1936 NUMBER 12



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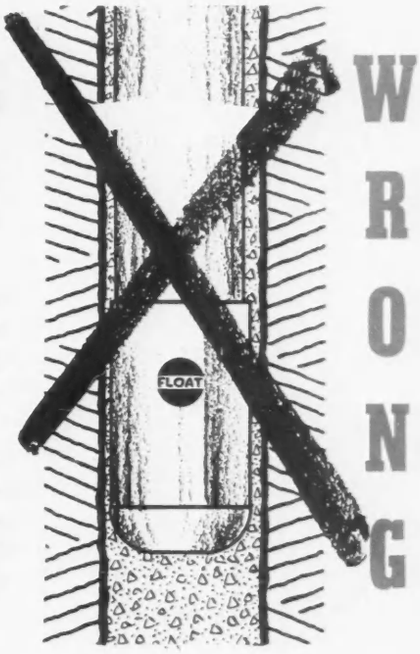
IN CEMENTING IT'S THE *Bond Between* THAT COUNTS



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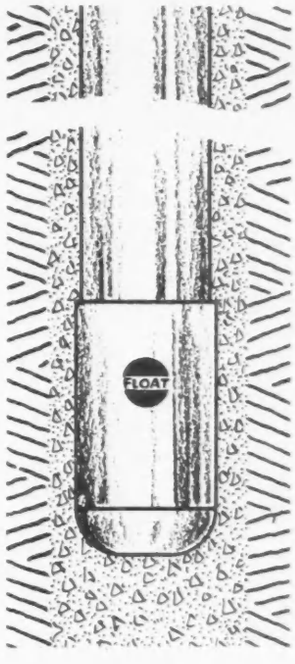

USE OF A BAKER ROTARY WALL SCRAPER INSURES AN EFFECTIVE BOND BETWEEN CEMENT AND FORMATION – THE FIRST STEP IN A SUCCESSFUL CEMENTING JOB.

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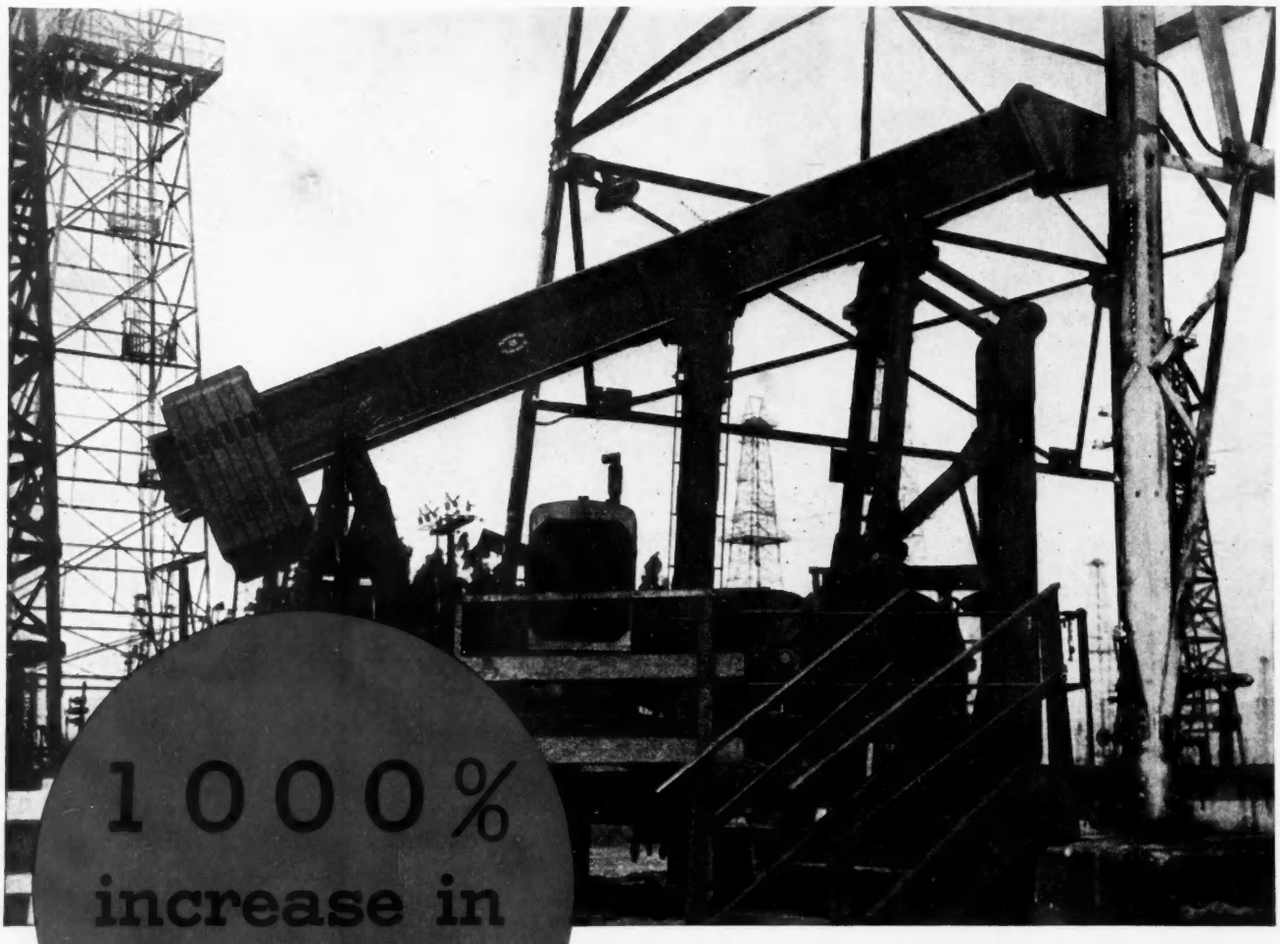

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THE OIL WEEKLY

FOR OIL AND GAS PRODUCERS
AND PIPE LINE MEN

ENGINEERING NEWS STATISTICS

WARREN L. BAKER, Editor

This Week:

THE Bureau of Mines has estimated that the required crude production during December will be 2,930,300 barrels daily, an increase of 60,000 barrels over the November figures. The increasing use of oil for heating purposes was seen by the bureau as the greatest influence in causing a greater demand, although high gasoline consumption also is contributing. The bureau estimated that demand during the first quarter of 1937 would be nine percent greater than in the corresponding period of 1936. The higher allowable during December resulted in the bureau recommending increased outputs for the majority of states. **Page 8.**

THE Texas Railroad Commission set the state's daily crude production allowable during December at 1,201,670 barrels, an increase of 40,260 barrels over the allocation effective November 18. It is 56,470 barrels higher than the Bureau of Mines December recommendations for the state. Each district in the state gained by the new order. **Page 9.**

CALIFORNIA's daily crude oil production quota for December has been set at 551,000 barrels by the central committee of operators. This figure represents a 7000-barrel increase over the November allocation, and is the first raise since in the spring. The new quota is 1000 barrels over the Bureau of Mines recommendation. **Page 9.**

OPERATORS in the Barbers Hill field last week asked the Texas Railroad Commission to grant a 3000-barrel increase in the field's allowable to prevent injury to wells. Evidence supporting their claim that wells were being hurt by the present commission proration order was heard.

THE famous Allred anti-trust ouster suit seeking a $17,000,000 fine and to prohibit 15 major companies from doing business in Texas was in court again last week. This time the Texas Supreme Court heard arguments in its appeal from a civil decision. **Page 9.**

ALTHOUGH the Bureau of Mines declined to project consumer demand six months in advance, E. O. Thompson, chairman of the Texas Railroad Commission, pointed out the bureau's announcement that a nine percent increase was expected during the first quarter of 1937 providing the commission with a sound basis upon which to plan Texas allowables. **Page 8.**

A study of the Rodessa field indicates that while the field in 16 months time has established itself as a major producing area, it is due to get greater recognition. Additional expansion, big recovery and long life are indicated by present conditions. The field already is over 16 miles long and not defined in many places. Moreover, heavy gas waste several months ago failed to injure the intensely developed sections as much as believed, and with these conditions being corrected the area should flow for a long period. It is estimated the field will recover 20,000 barrels to the acre. **Page 15.**

HUMBLE Oil & Refining Company will plan a 10-inch gas pipe line from the Tomball field to industrial districts at Houston, Baytown, Beaumont and Port Arthur on the Gulf Coast of Texas. Approximately 120 miles of pipe will be required for the system, which is expected to be in operation about April 1, 1937. **Page 12.**

IT is desirable to develop some rational method of studying the problem of determining when pumping equipment must be installed on flowing wells, and for developing knowledge of flowing rates at various bottom-hole pressures for potential purposes. Therefore, a review of the various methods known today are of value. **Page 28.**

Next Week:

SOME interesting pumping experiments being conducted in fields along the Barton-Ellsworth Arch in Kansas may result in important improvements. Frank B. Taylor, who recently visited the area and discussed the problems with operators, has prepared an interesting article stressing the influence of the pump barrel position in the column of fluid on water encroachment.

A study of the texture of sands from seven Gulf Coast producing sands shows that each zone has some particular distinguishing feature that makes possible the correlation of zones by grain sizes. M. T. Halbouty will discuss his findings after investigating the texture of 315 samples in the third installment of his series on petrographic and physical characteristics of these sands.

MANY areas in the Texas-Louisiana Gulf Coast have heretofore remained inaccessible to reflection seismograph work because of timbered swamps, dense thickets, marshy lakes, etc. Today these regions are being prospected successfully as a result of new portable equipment, which because of its light weight is enabling operators to penetrate such districts. It is felt that many new fields will be discovered as a result of this advancement in geophysical equipment, and which will be discussed in the next issue.

See Production Boom

60,000 BARREL INCREASE IN BUREAU'S DECEMBER FIGURES

WASHINGTON, D. C.

THE American oil industry is on the verge of a major production boom, it is indicated by the Bureau of Mines' monthly forecast for December placing the estimated required production of crude at 2,930,300 barrels a day, an increase of 60,000 barrels over the November figure.

"Present market trends indicate a continuance of the increased demand for petroleum products during the first quarter of 1937 with probable increases in the amount of new crude required, particularly from those states which supply refinery districts serving areas of large fuel oil consumption," the bureau declared.

"A review of consumption trends indicates a probable increase of about nine percent in the total demand for motor fuel and an average monthly increase of about 4,000,000 barrels in the total demand for heating and fuel oils for the first quarter of 1937 as compared with the same period in 1936."

Reject Six Months Proposal

Because of the uncertainties of the situation, the bureau rejected the proposal made last month on behalf of the Interstate Compact Commission by Colonel Ernest O. Thompson of the Texas Railroad Commission that forecasts for periods as long as six months be issued in order that state regulatory bodies and the industry itself might take steps to stabilize their activities.

"Insufficient data, unpredictable weather conditions and a divergence of opinion as to the probable trend of refinery operations do not warrant a detailed forecast for more than one month in advance," it was explained.

The increasing use of oil for heating purposes is seen by the bureau as both a stabilizing influence on the industry, as evidenced by the fact that winter production will continue at a high level, and as the basis for the broad expansion of production activities which Washington officials foresee.

"During the last five weeks (ending November 7) for which complete data are available, the daily average production of crude petroleum was about 3,067,000 barrels, or about 35,000 barrels greater than the production in September," the bureau commented. "The average withdrawal from domestic crude stocks over this period was about 119,000 barrels daily, indicating a daily demand of 3,186,000 barrels."

The domestic demand for motor fuel in December is estimated at 36,400,000 barrels, or eight percent higher than the 31,950,000 barrels actually consumed in December, 1935. Exports of motor fuel for December are estimated at 2,300,000 barrels, 100,000 barrels under the November figure and 900,000 barrels under December, 1935, shipments.

"Stocks of finished and unfinished gasoline on September 30 amounted to 57,800,000 barrels, a decline of 1,696,000 barrels for the month, compared with a recommended withdrawal of 3,980,000 barrels," it was pointed out. "According to the American Petroleum Institute statistics, stocks were further reduced during October by 237,000 barrels which would bring this stock figure to approximately 57,560,000 barrels as of October 31, compared with 49,798,000 barrels on the same date last year.

"Although these stocks are generally considered higher than is healthful for the industry even with the increase in demand, it is evident that they will be increased considerably during the winter months incidental to the running of crude to produce enough fuel oil to meet the estimated demand based on present market trends."

Making an estimate of 750,000 barrels for benzol and direct sales and losses of natural gasoline, the estimated production of gasoline for December is placed at 41,450,000 barrels, recommended to be distributed among the several districts as follows: East Coast, 6,610,000 barrels; Appalachian, 1,550,000 barrels; Indiana-Illinois, 6,700,000 barrels; Oklahoma, 3,060,000 barrels; Kansas-Missouri, 2,560,000 barrels; Texas inland, 3,230,000 barrels; Texas Gulf, 8,640,000 barrels; Louisiana Gulf, 1,570,000 barrels; Arkansas-Louisiana inland, 880,000 barrels; Rocky Mountain, 970,000 barrels; California, 5,610,000 barrels..

Fuel Oil Demand Up

"The domestic demand for gas oil, distillate fuel oil and residual fuel oil for the first nine months of 1936 of 294,500,000 barrels was 32,300,000 barrels, or 12.3 percent, higher than for the same period in 1935," the bureau stated in discussing the influence of heating oils upon production.

"Although part of this is attributable to the extremely cold weather during the first two months of this year, the higher consumption during the other months of the year and the increasing number of oil burner installations indicate that the trend is definitely upward.

"Total demand for the third quarter of 1936 was almost 11,000,000 barrels greater than in the same period in 1935, or an average monthly increase of 3,600,000 barrels. The growth in the market for residual fuel oil was responsible primarily for this increase. While normally such oil is considered as a by-product incident to the production of the more desirable gasoline and distillate oils, the projection of present market trends indicates that refiners will meet this demand during the coming quarter.

"To meet this upward trend and pos-

A SOUND BASIS
Thompson says bureau aids by latest figures

AUSTIN

COMMISSION Chairman Ernest O. Thompson pointed out last week that though the Bureau of Mines has declined to project consumer demand for six months in advance, its announcement that a nine percent increase in demand is anticipated during the first quarter of 1937 furnishes the Railroad Commission of Texas with a sound basis upon which to plan a program for fixing Texas allowables.

Thompson had requested the bureau to prepare this information in order to prevent the fluctuation in allowables which has taken place in the past. He hoped to work out a program whereby allowables would remain stable throughout the year and by which seasonal variation might be limited to some extent.

The bureau has reported that the probable consumer demand for Texas oil during the month of December will be 1,145,200 barrels per day. A nine percent increase would amount to 103,068 barrels daily, or a total demand of 1,248,268 barrels daily by the end of March, 1937.

The total Texas allowable on November 18 was 1,161,410 barrels and the allowable had increased to 1,168,043 barrels per day on November 24. This increase was caused entirely by the completion of new wells. Thus it is apparent that the commission would have to cut some 23,000 barrels per day if December allowables for Texas are to fall within the consumer demand as calculated by the federal bureau.

Recommendatory Levels of Required Crude Oil Production By States

(Daily averages in barrels)

STATE	December, 1936	November, 1936	December, 1935
Texas	1,145,200	1,109,300	1,005,800
Oklahoma	567,000	558,400	480,100
California	553,400	549,600	513,800
Louisiana	204,800	198,600	128,000
Kansas	155,900	154,500	138,700
New Mexico	78,300	75,600	55,500
Pennsylvania	48,800	46,900	39,700
Wyoming	40,200	40,100	35,100
Michigan	29,300	29,000	41,800
Arkansas	26,800	28,100	28,100
Kentucky	14,500	14,000	14,300
Montana	14,300	14,300	11,500
New York	11,900	12,200	10,300
Illinois	11,900	11,600	10,900
Ohio	11,200	11,200	10,500
West Virginia	10,100	10,300	10,000
Colorado	4,500	4,400	4,000
Indiana	2,200	2,200	2,100
Totals	2,930,300	2,870,300	2,540,200

sible excess requirements because of severe weather, there were 18,860,000 barrels of gas oil and distillate fuel oil in storage east of California on September 30, or 1,515,000 barrels more than on the same date in 1935, and 20,182,000 barrels of residual fuel oil, or 7,169,000 barrels less than on the same date in 1935. This situation indicates that the fuel oil requirements for the coming months will require unusually heavy runs to stills with consequent large additions to gasoline stocks. Provision has, therefore, been made for additions of 3,500,000 barrels of gasoline to stocks during the month of December."

Placing the consumption of natural gasoline at 8.3 percent of the total gasoline made, or 0.7 percent lower than November's estimate, in accordance with the usual seasonal change, the bureau reduced the estimate yield of straight-run and cracked gasoline from the 44.14 percent estimated in November to 43.62 percent to anticipate a greater yield of fuel oil, and by application of these figures the estimated gasoline production of 38,010,000 barrels gives 87,140,000 barrels as the crude required at refineries.

Runs of foreign crudes have been estimated as 2,800,000 barrels; exports of crude are figured at 3,900,000 barrels, a decrease of 100,000 barrels from the November estimate, and fuel and loss estimates are increased 100,000 barrels to 2,600,000 barrels.

To provide the daily average production of 2,930,300 barrels which is forecast, the bureau recommends increases in the output of all states except Montana, Ohio and Indiana, which should remain at their November levels, and Arkansas, New York and West Virginia, where small reductions are foreseen.

ALLRED TRUST SUIT
Famed case heard by the Texas Supreme Court

AUSTIN

THE Texas Supreme Court last Wednesday heard oral arguments in the famous Allred Anti-Trust "Ouster" Suit, which would fine Texas oil companies a total of $17,000,000 and prohibit them from doing business in Texas.

The suit was filed several years ago at the time Governor Allred was attorney general of Texas. It is alleged that the American Petroleum Institute, two marketing associations and 15 major oil companies, operating strings of filling stations in Texas had violated the Texas anti-trust law through marketing agreements. The suit was dismissed by the trial court on the grounds that the National Recovery Act had superseded Texas anti-trust laws.

The Third Court of Civil Appeals sustained the ruling of the trial court but for different reasons. This court held that the exceptions allowed by the Legislature had invalidated the anti-trust law.

Attorney General McCraw has appealed the case to the Texas Supreme Court and it was on this appeal that attorneys argued last week before all nine judges which comprise the court. McCraw, his assistant, Alfred M. Scott, Everett Looney, and John Cofer, Austin attorneys, presented the arguments for the state. The oil companies were represented by Frank Andrews, C. R. Wharton, Dan Moody and Charles L. Black.

Raise Texas Output

COMMISSION SETS DECEMBER ALLOWABLE ABOVE BUREAU'S

AUSTIN.

THE Texas Railroad Commission has issued a new statewide proration order effective December 1, providing for a total allowable of 1,201,670 barrels daily. This is an increase of 40,260 barrels daily over the allowable of 1,161,410 barrels daily which was in effect November 18. It is 56,470 barrels higher than the consumer demand for December as calculated by the United States Bureau of Mines. This is 1,145,200 barrels daily.

As the order was released, Commission Chairman Ernest O. Thompson explained that the condition of storage, as analyzed by the commission, indicated that production should be raised. He pointed out that while 290,000,000 barrels of oil are now in storage in the United States, this is held by the larger companies and is not available to the smaller refineries. He estimated that there were 20,000,000 barrels in transit in pipe lines, 50,000,000 barrels held in working stocks at refineries, 7,500,000 barrels in transit in tankers, and that about 15 percent of the entire amount is basic sediment and water. There appears to be above ground oil for only 40 to 50 days. Thompson said, "It may be less than this."

Thompson pointed out that the Bureau of Mines had ceased to include in its consumer demand estimates of the withdrawals from storage which had been allowed in past. The entire demand is now allocated to production. While the federal bureau has declined to give estimates six months in advance, Thompson said it had estimated that the demand would increase nine percent during the first quarter of 1937. This, he said, was sufficient to give the commission a proper basis for determining future needs.

Each district in the state gained by the new order, and not only were raises granted to those fields which had shown a firm market for more oil, but additional allowances were made to fields in an effort to give each field in the same class allowances which placed it on a parity with the others.

District increases were as follows: Southwest Texas, up 5256 barrels to 179,724 barrels; Gulf Coast, up 7674 barrels to 169,242 barrels; East Central Texas, up 2100 barrels to 57,652 barrels; East Texas,

HIKE ALLOWABLE
California December oil quota up 7000 barrels

LOS ANGELES

CALIFORNIA'S December crude quota was increased to 551,000 barrels daily when the Central Committee of California Oil Operators on November 24, approved the allocation committee's recommended 7000-barrel increase over the 544,000-barrel quota which had been in effect since last spring. The new quota compares with 553,000 daily recommended by the United States Bureau of Mines. The latter was based on anticipated consumptive demand for the final month of the year.

Two objectives, Chairman Vander Leck said, were sought by the increase; closer alignment with the Bureau of Mines figures averaged throughout the year, and more efficient curtailment. The December quota, he said in reply to objections raised by some committee members, would bring the Central Committee quota when averaged down for the year, approximately 500 barrels daily over that of the bureau. The two were about 229 barrels apart last month when the bureau had recommended a 549-000-barrel quota for November.

While more effective curtailment is the principal objective, the relatively close average achieved by the allocation committee in spite of the fact that the 544,000-barrel quota for the year was determined last spring when it was impossible to foresee the surprising increase during the season of peak demand, convinces the committee its course was the wise one. The decision on the 7000-barrel increase in the December crude quota, therefore, was taken notwithstanding the fact that November crude runs during the first 21 days averaged more than 590,000 barrels daily.

Admitting the possibility of a slackening in curtailment effort, as forecast by some members, as a result of such an increase, the majority of operators it was believed would interpret the move in the right spirit since the major portion of the 7000-barrel increase will be utilized to take care of new well production. The balance will be distributed by the allocation committee to relieve pressures in certain fields or areas where acute problems have arisen from too tight application of curtailment screws.

HIKE GAS OUTPUT
Texas December quota up 300,000,000 feet

AUSTIN

THE Texas Railroad Commission November 25 authorized an increase of approximately 300,000,000 cubic feet daily in the state's natural gas production during December. The boost came as the result of seasonal demand.

The new allowable for sweet and sour gas production is 1,922,151,000 cubic feet daily. It is allocated as follows:

Panhandle east sweet zone, 178,229,000 feet; Panhandle west sweet zone, 698,461,000; Panhandle sour, 598,193,000; sweet gas outside Panhandle, 432,112,000; and sour gas outside Panhandle, 16,155,000 feet.

Strike Threatens

MEXICO'S NEW LEGISLATION MAY GET COURT TEST

AS this issue of THE OIL WEEKLY goes to press, there is a strong possibility of Mexico's oil industry being tied up indefinitely by a general oil workers' strike called for November 29 by the National Oil Syndicate, a labor union, as a result of refusal of 15 or more oil companies to meet what they allege to be ridiculous demands by that union. If the strike goes into effect, or if it does not, oil companies in Mexico fear application of the new agrarian legislation, which has a distribute-the-wealth tenor, may result in oil properties being turned over to the workers for exploitation.

To Test Legality

Regardles of the result of the existing threat of the National Oil Syndicate to call the general strike November 29, a test of the legality of Mexico's new legislation before the supreme court of that nation is anticipated by industrialists. If this intention is carried out, it has possibilities of re-acting in the same manner that a supreme court test of the constitutionality of the National Industrial Recovery Act reacted in the United States of America.

Rather broad publicity has been given to the fact that Lazaro Cardenas, president of Mexico, fostered the new legislation. Little, if anything, has been said as to whether he is in favor of the rather drastic action threatened by the National Oil Syndicate. It is to be inferred, however, that a general oil industry strike would also tie up activities of Petroleos de Mexico, S. A., the semi-official government controlled company operating as an integrated corporation in Mexico. It is likewise to be concluded that Mexico will cripple temporarily one of its heaviest contributors of national revenue if all the industry is paralyzed for the duration of the strike. The president, apparently, is reticent to state whether he is in sympathy with the oil workers or not. November 20, at 11:28 a.m. THE OIL WEEKLY sent him a telegram requesting him to give his opinion as to whether the strike called against the oil industry for November 29 was justified. Up through the afternoon of November 27 no acknowledgment of the telegram, either by wire or letter, had been received in Houston. The inference may be drawn that the message either did not reach President Cardenas or that he preferred not to be quoted regarding the controversy between the labor syndicate and the oil companies.

On the eve of the threat to call the strike. Ortiz Rubio, president of Petroleos de Mexico, S. A., (Petromex), retired. Rubio, ex-president of the Republic of Mexico, was waiting for action on his resignation by the board of directors of Petromex when THE OIL WEEKLY sent him a telegram asking for a similar statement and whether work of Petromex would also be tied up if strike went into effect. Ex-president Rubio, who gave as reason for his resignation from leadership of Petromex a desire to devote all of his time to private business, apparently was not overwhelmed with desire to espouse the cause of the strikers, or he did not receive the message. He, too, did not deign to answer the telegram sent him on November 20.

In connection with the nature of the demands made by the workers for higher wages, additional housing accommodations, additional medical attention for their relatives, and transportation paid vacations of as much as 10 weeks per

[*Continued on page 50*]

RODESSA HEARING

Many suggestions made to Louisiana officials

PROPOSALS ranging from the continuance of operations in the Louisiana portion of the Rodessa field substantially as at present, with the exception that all wells would be required to be repaired to produce from only one strata, and for reducing the gas escape to 2000 cubic feet for each barrel of oil, were proposed here today.

The proposals were made at a hearing held before Governor Richard W. Leche and State Conservation Commissioner W. G. Rankin to gather data upon which an order is to be issued for the further conservation of the resources of the field. A proposal was made that carbon black plants be permitted to use the gas which cannot be otherwise conserved.

The present temporary order of the conservation commission permitting wells producing distillate to allow the escape of 6,000,000 cubic feet of natural gas a day and permitting wells producing oil to allow the escape of 3,000,000 cubic feet a day will continue in effect until an order is prepared and issued in perhaps a week or two weeks, Governor Leche said at the conclusion of the hearing. The governor explained further that the order when issued will be subject to revision.

"Our primary interest," the governor said, "is to protect the interests of the people of Louisiana. Two million people in Louisiana are involved in the taxes produced from that field and are interested in seeing these taxes continue to come as long as possible. If we can issue an order that will conserve the field and not hurt anybody, we will be glad. If we can issue an order that will hurt but a few we will try to do that, but if it hurts everybody, still the interest of the people of the state is greater. The severance tax from the field is now at the rate of from $3,000,000 to $4,000,000 a year, I understand, and we want to keep the field operating as long as possible."

The idea was general among the some 50 oil men in attendance that the 58 wells which have penetrated more than one oil sand should be repaired and their owners should be forced to take their production from only one sand. This, several witnesses testified, would materially reduce the gas-oil ratio for all the wells with the existent high ratio.

J. R. McWilliams, representing Standard Oil Company of Louisiana, said his company had repaired two wells, one at a cost of $10,000 and the other at a cost of $7800, and that the gas-oil ratio had been reduced from 40,000 cubic feet of gas to 1 of oil down to 600 cubic feet of gas to 1 of oil and that the other had been reduced from the same high figure to approximately 4000 cubic feet of gas to a barrel of oil.

Allen Davenport, of the W. & D. Corporation, operators in the field advocated the use of carbon black plants to make use of at least a portion of the gas that otherwise is escaping and cannot be saved even with the most prudent operation of the wells.

Davenport said his partner, Hal Smith, had made the necessary tests to show that the operation would be profitable and that he knew of two concerns each of which is willing to build 20,000,000 cubic foot carbon black plants.

Outside the record, Davenport explained that each of these plants would cost $400,000 would require 250 men 5 months to build, would require 50 men for their operation, and would give the state $60 a day in severance taxes.

G. M. Holland, director of the Petroleum Control Division of the Department of the Interior, attended the hearing but did not participate in any manner.

The hearing was the first held under the oil proration law of 1936, the governor explained as the hearing opened, and added that it was the purpose of the state to enforce the order when promulgated with the full power of the state.

H. W. Bell, chairman of the Engineers' Sub-Committee of the Rodessa Operators Committee, testified in an exhibit filed in the record that upwards of 500,000,000 cubic feet of gas daily is now escaping from the Rodessa field, and R. O. Garrett of Arkansas Natural Gas Company testified that the state was losing from $3000 to $5000 a day in taxes because this gas is not being used.

Bell testified that in the field there are now a total of 339 wells, that of these 20 are gas wells, 29 are gas cap wells producing distillate, 27 are distillate wells that could perhaps be made into oil wells, and 263 are oil wells.

It was further shown by his report that the gas pressure of the field was reduced from an initial 2800 pounds to 1967 and that the pressure is now dropping at the rate of more than a pound a day. It was estimated that 170,000,000 cubic feet of gas a day is being saved and that 466,000,000 cubic feet is being blown into the atmosphere.

W. A. Krauss of Phillips Petroleum Company proposed that the allowable of oil be prorated 50 percent on the basis of surface acreage and 50 percent on the basis of well-bottom pressure with the maximum amount of gas coming from any well being limited to 5000 cubic feet for each barrel of production of the largest production permitted in the field.

Garrett made the same proposal, but suggested that the top limit on gas be fixed at 10,000 cubic feet per barrel.

T. A. Hall, representing Tide Water Oil Company, made three suggestions. One

[*Continued on page 44*]

MEN IN THE INDUSTRY'S NEWS

RAYMOND BENJAMIN, of San Francisco, California, vice president of Conservative Oil Company, was among the officials of that company to visit its properties in the Saxet field, near Corpus Christi last week. Others were Edward Clifford, of Washington, D. C., vice president; and Hiriam Bingham, former United States Senator from Connecticut.

ED McADAMS, California operator, left Los Angeles November 20 to visit oil fields of New Mexico and Texas.

J. F. FOUCH, deputy supervisor, and Ben F. Looney, Jr., in charge of the tender department of the Oil and Gas Division of the Texas Railroad Commission, Corpus Christi, have been transferred to the Pampa office. Grady Russell has been made deputy supervisor for the Corpus Christi district, and J. N. Green has been placed in charge of tender board. In addition, two East Texas office members of the commission have been transferred to the Corpus Christi area. They include Booth Hopkins and Russell Day, both to work in the fields.

GLENN SLEIGHT, formerly with the oil and gas division of the Michigan state conservation department, has succeeded James Ward as scout for Sun Oil Company in Michigan. Ward resigned to go into private business.

ROBERT W. ATHA, field manager and secretary of the Atha-Stewart, Incorporated, contractors and producers, has resigned and will enter into private business.

W. B. ROYER, land man for Tide Water Oil Company, Houston, is stationed in Corpus Christi for a while and will probably be back to Houston in a few months.

H. EVERETT LONG, for a number of years chief clerk of the geological department of Mexican Gulf Oil Company at Tampico, has resigned to go into business in California. Otto van Rossum, geologist for the same company at Valles, State of San Luis Potosi, has been transferred to Tampico to take over Long's duties.

J. W. GLASSCOCK, formerly assistant purchasing agent for American Well & Prospecting Company, Corsicana, Texas, has been promoted to the position of purchasing agent. He succeeds M. J. Baker, deceased.

CHARLES CLOWER, construction superintendent, Huasteca Petroleum Company at Tampico, Mexico, is spending a vacation in Louisiana.

JOHN CARTER, scout for Tide Water Oil Company, Houston, has been transferred to San Antonio.

DAVE LOGAN, former state senator from the Okmulgee district, Oklahoma, has been named district oil conservation officer of the Oklahoma Corporation Commission for the Okmulgee territory. Ted Pond, who has had charge of the district, has been given charge of the Oklahoma City district, to replace L. D. Smith, resigned.

WYLIE A. MARTIN

WYLIE A. MARTIN, after serving Sinclair Prairie Oil Company for 31 years as general superintendent of production, has voluntarily retired, as announced November 23 by W. L. Connelly, chairman of the directorate of the company. Martin entered the services of the company when it was first formed, in 1905, and since that time has directed the drilling of thousands of wells in Oklahoma, Kansas, Texas, Louisiana, New Mexico, Wyoming and Arkansas. Although less active in recent years, Martin has kept in touch with practically all drilling and production activities of the company. No successor will be named immediately, and Martin will continue to serve in an advisory and consulting capacity. Connelly is now first in years of service, having joined the company in 1906.

The Oil Man's Calendar

NOV. 30	American Society of Mechanical Engineers, Annual Meeting, Society's Building, New York.
NOV. 30–DEC. 1	Independent Petroleum Association of America, Biltmore Hotel, Oklahoma City, Oklahoma.
1	Interstate Oil-Compact Commission Oklahoma City, Oklahoma.
DEC. 4	Mid-Continent Oil and Gas Association, Texas Division, Annual Meeting, Houston, Texas.
15	Mid-Continent Oil & Gas Association, Annual Meeting of General Board of Directors, Tulsa, Oklahoma.
JAN. 16–24	First International Consumers Petroleum Exposition, Detroit, Michigan.
FEB. 15–19	American Institute of Mining and Metallurgical Engineers, New York
MAR. 17–19	American Association of Petroleum Geologists, Los Angeles, California.
APR. 8–10	Petroleum Industry Electrical Association, Shreveport, Louisiana.
JUNE 1–3	American Petroleum Institute, Mid-Year Meeting, Colorado Springs, Colorado.

A. E. BRADSHAW, president, National Bank of Tulsa, has been appointed a member of the executive committee of the Kansas and Oklahoma division of the Mid-Continent Oil and Gas Association.

C. W. WEAVER, scout for Tide Water Oil Company is now scouting the southwest Texas district out of Corpus Christi.

PETE STIEN, geologist for Continental Oil Company has been transferred to the Corpus Christi district.

J. W. BRADBURY, general agent, Mexican Gulf Oil Company at Tampico, was in Houston recently for several days.

JAMES C. LINDSAY, executive depart- Compania Mexicana de Petroleo "El Aguila" S.A. at Tampico, is spending a vacation in England.

CHESTER FEAR, St. Louis Oil Company, was elected chairman of the Los Angeles Basin chapter of the American Petroleum Institute Division of Production at a recent meeting held in Long Beach, California. Robert L. Keyes, The Texas Company, Santa Fe Springs, was elected vice chairman, and Earl M. Rees, sales manager, Fluid Packed Pump Company, is the new secretary-treasurer.

RICHARD C. KERR, petroleum engineer; Dr. J. B. Stade, physician; Jim Wilson, Iniskin Drilling Company, and Jack Allen, Iniskin Drilling Company, were aboard a plane lost in Alaska. All were associated with Iniskin Drilling Company, which is drilling a well in Alaska. No word from the plane has been received.

FRAN EVERS, formerly with Kirby Petroleum Corporation, Houston, now is connected with Superior Oil Producing Company, Houston, as a scout. He will assist Charlie Noble.

JOE TURNER, scout for Continental Oil Company, Houston, has been transferred to the Corpus Christi district.

DIED:

J. A. (Jack) REES, employed in the royalty division of Indian Territory Illuminating Oil Company, was killed and his wife seriously injured in an automobile accident near Burlington, Kansas, on November 26. Rees was 68 and had been with the company for several years.

EDWARD RENSHAW THOMAS, 41, independent oil man of San Antonio, died November 23 at Alice, Texas, from

burns received on November 18. Thomas and Bruce Hood, his superintendent, were burned when an oil stove in a trailer exploded. He had been in the oil business about 15 years. He was a native of Louisiana, lived for a while in Houston and then moved to San Antonio. He is survived by four sons, all of San Antonio, and his parents of Houston. Burial was at the latter city.

E. B. KIMBALL, 65, geologist and mining engineer, died suddenly in British Guiana while inspecting properties for an English mining concern. He was president of Madrona Oil Company, which owns royalty interests in the Van field, Texas, and resided in Fort Worth for about 10 years prior to 1928 when he established residence at Oakland, California. The body will be forwarded to the latter city for burial.

THOMAS BUSH McQUEEN, 71, secretary and director of Marlin Oil Company, died at Marlin, Texas, November 23. Funeral services were held at Bryan, Texas. McQueen was a native Texan, being born at Old Washington on the Brazos and educated at Texas A. & M. College. He is survived by three sisters.

ARTHUR R. SMILEY, 53, an attorney of Los Angeles who specialized in petroleum law, died at his home in Los Angeles, November 18.

FLOYD A. KINGERY, district manager of Oil Well Supply Company at Wichita Falls, Texas, died there of pneumonia on November 23. He was born in Illinois 44 years ago, and had been with Oil Well Supply Company for approximately 20 years. Burial was at Lawrenceville, Illinois, where his parents survive.

M. J. BAKER, for over a quarter of a century purchasing agent for American Well & Prospecting Company, Corsicana, Texas, recently passed away.

LEE B. METTLER, president, Lee B. Mettler Company, Los Angeles, combustion engineers, passed away November 13 of a severe heart attack. He had been ill for some time but the end came suddenly. Mettler was born in Adrian, Michigan, December 7, 1874, and was associated with the gas industry for many years. The past 15 years he was in business for himself manufacturing combustion gas burners.

GULF COAST LINE

Tulsa.—Representatives of the Kansas-Oklahoma division to the board of directors of the general Mid-Continent Oil & Gas Association, elected November 20, are as follows:

A. M. Blow, Amerada Petroleum Corporation, Tulsa; Burdette Blue, Indian Territory Illuminating Oil Company, Bartlesville; Wm. N. Davis, Phillips Petroleum Company, Bartlesville; J. C. Denton, Mid-Continent Petroleum Corporation, Tulsa; A. L. Derby, Derby Oil Company, Wichita, Kansas; W. W. Fleming, The Ohio Oil Company, Tulsa; E. R. Filley, The Texas Company, Tulsa; A. J. Galloway, Shell Petroleum Corporation, Tulsa; C. H. Lieb, The Carter Oil Company, Tulsa; D. J. Moran, Continental Oil Company, Ponca City; Henry L. Phillips, Sinclair Prairie Oil Company, Tulsa; R. B. Pringle, Tide Water Oil Company, Tulsa; F. O. Prior, Stanolind Oil & Gas Company, Tulsa; Ralph Pryor, Slick, Pryor & Lockhart, Wichita; E. B. Reeser, Barnsdall Oil Company, Tulsa; J. D. McNutt, Pure Oil Company, Tulsa; W. G. Skelly, Skelly Oil Company, Tulsa.

HOUSTON IPAA MEN

Houston.—Houston will have an active part in the deliberations of the Independent Petroleum Association of America at its Annual Meeting at Oklahoma City, Oklahoma, November 30 and December 1. Among the prominent oil men from this city who will be active in the program and in the discussion of the policies proposed to the industry for the coming year, will be: E. A. Showers, Showers & Moncrief, Inc., a member of the Budget and Finance Committee; R. J. St. Germain, 710 Sterling Building, a member of the Royalty Owners Committee; G. W. Strake, Strake Oil Corporation, a member of the Activities Committee; Winston P. Henry, president, Putnam Oil Company, a member of the Nominating Committee and Budget and Finance Committee; George A. Hill, Jr., Hill & Hill, Inc., a member of the Resolutions Committee; N. W. Hunter, president, Texas Gulf Producing Company, a member of the Resolutions Committee.

This city will also be well represented at the meeting of the Board of Directors of the Association. The following local men are members of that board: John A. Deering, Earl Callaway, Winston P. Henry, N. W. Hunter, H. R. Merry, George Sawtelle, and E. A. Showers.

PIPE LINE NEWS

120-MILE GAS LINE
Tomball is to supply Gulf Coast industrial centers

Houston.—Humble Oil & Refining Company soon will start construction on a 10-inch 120-mile gas line that will connect the Tomball field with the industrial districts at Houston, Baytown, Port Arthur, Beaumont and Port Neches. The company now is acquiring the right-of-way for the new line, the first of its kind to serve the Tomball field. The line ultimately will be fed by several fields in which the company has large gas reserves.

The new line will have a capacity of 60,000,000 cubic feet daily, and contracts for the sale of gas already have been made with industrial consumers. The line will be completed before April 1, 1937, and cost of construction probably will exceed $1,500,000.

This line will be the first of its kind to be operated by the company, and will give a good outlet for surplus gas that formerly had no market.

A NEW FITTS LINE
Cosden system extension and enlargement planned

Tulsa.—Construction has been started on an extension of the Cosden Pipe Line Company system from the Cromwell station into the Fitts pool of Pontotoc County. The work will involve 47 miles of line for the transportation subsidiary of the Mid-Continent Petroleum Corporation.

From the Fitts pool a 4-inch line is being laid to the Harjo pump station in Section 9-7-8, Seminole County, to the Fitts terminus. The present 4-inch line from Harjo station to the Cromwell station is to be replaced with 6-inch line. Pumping equipment at Harjo station will be increased to take care of the additional load.

The Cosden Pipe Line Company's transportation system delivers crude oil to the refining plant of the Mid-Continent Petroleum Corporation at West Tulsa.

WEST TEXAS LINE

San Angelo, Texas.—Shell Pipe Line Corporation is building about five miles of four-inch welded line from its McCamey - Mid-Continent 10-inch trunk line to Col-Tex Refining Company's refinery near Colorado, Texas, to handle approximately 18,000 barrels of gasoline per month to be delivered on contract by the latter to Shell Petroleum Corporation. Deliveries of gasoline will be timed, according to reports, to coincide with batched movement of 21-23 gravity oil handled at intervals each month by Shell Pipe Line Corporation from the Torborg field, Pecos County, and the mixed product will be refined by one of Shell Petroleum Corporation's Middlewestern plants.

TWO OIL LINES

Wichita.—Contract for two parallel four-inch oil lines has been awarded by Dickey Oil Company to P. H. Joseph Construction Company. The lines will be 10 miles long and provide outlets for the Graber field, east of Mound Ridge, Kansas. One line is to connect to Dickey Oil Company's main line running to its McPherson, Kansas, refinery, and the other to Kansas Pipe Line Company's line at McPherson. The so-called stab on method of construction using acetylene welding will be employed.

GULF COAST LINE

Houston.—Sun Pipe Line Company is preparing to construct a six-inch line from the Nome field, Jefferson County to a loading rack at Beaumont, Texas. The six-inch line will parallel the company's line from the East Texas field to the loading rack.

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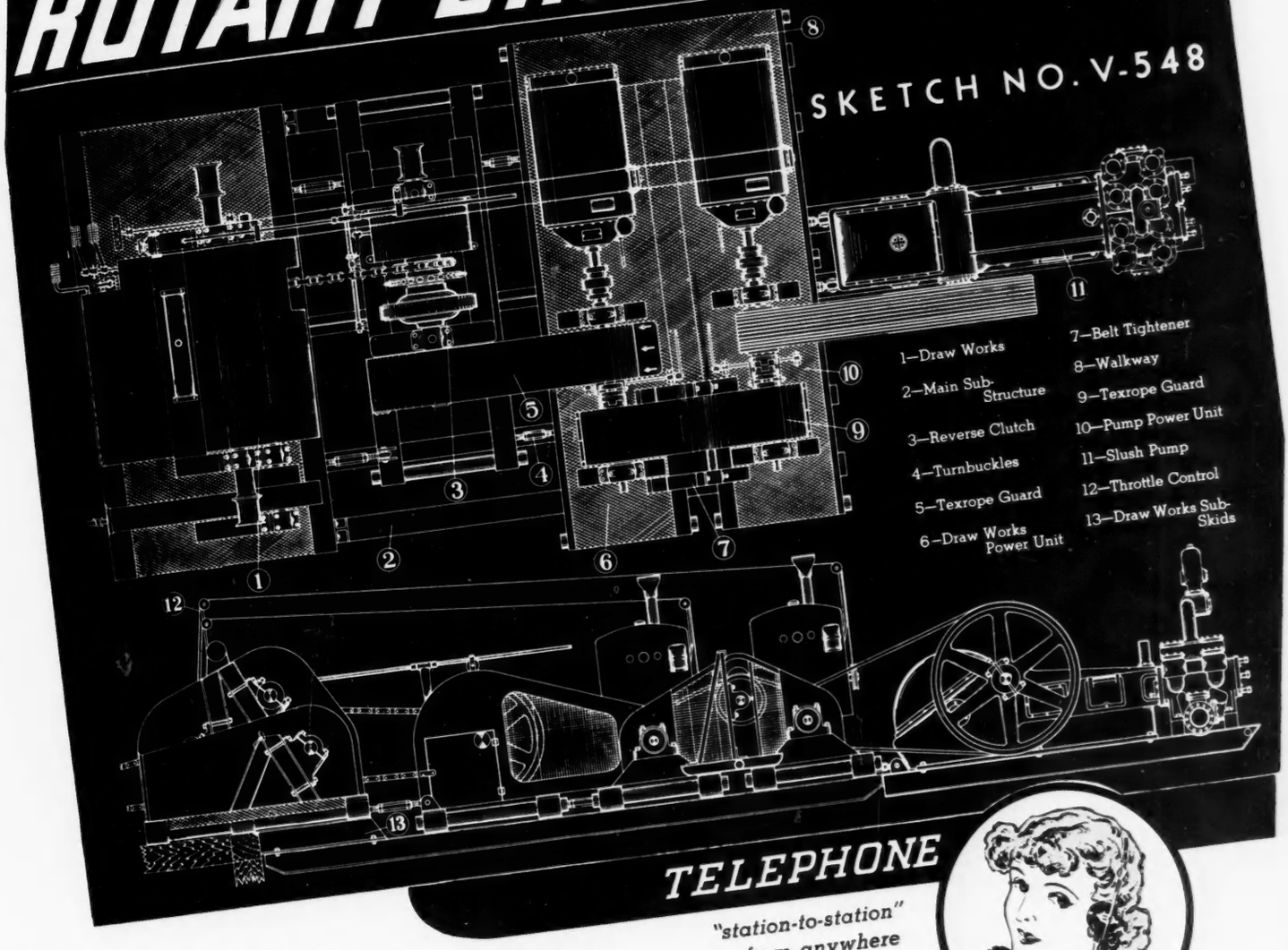

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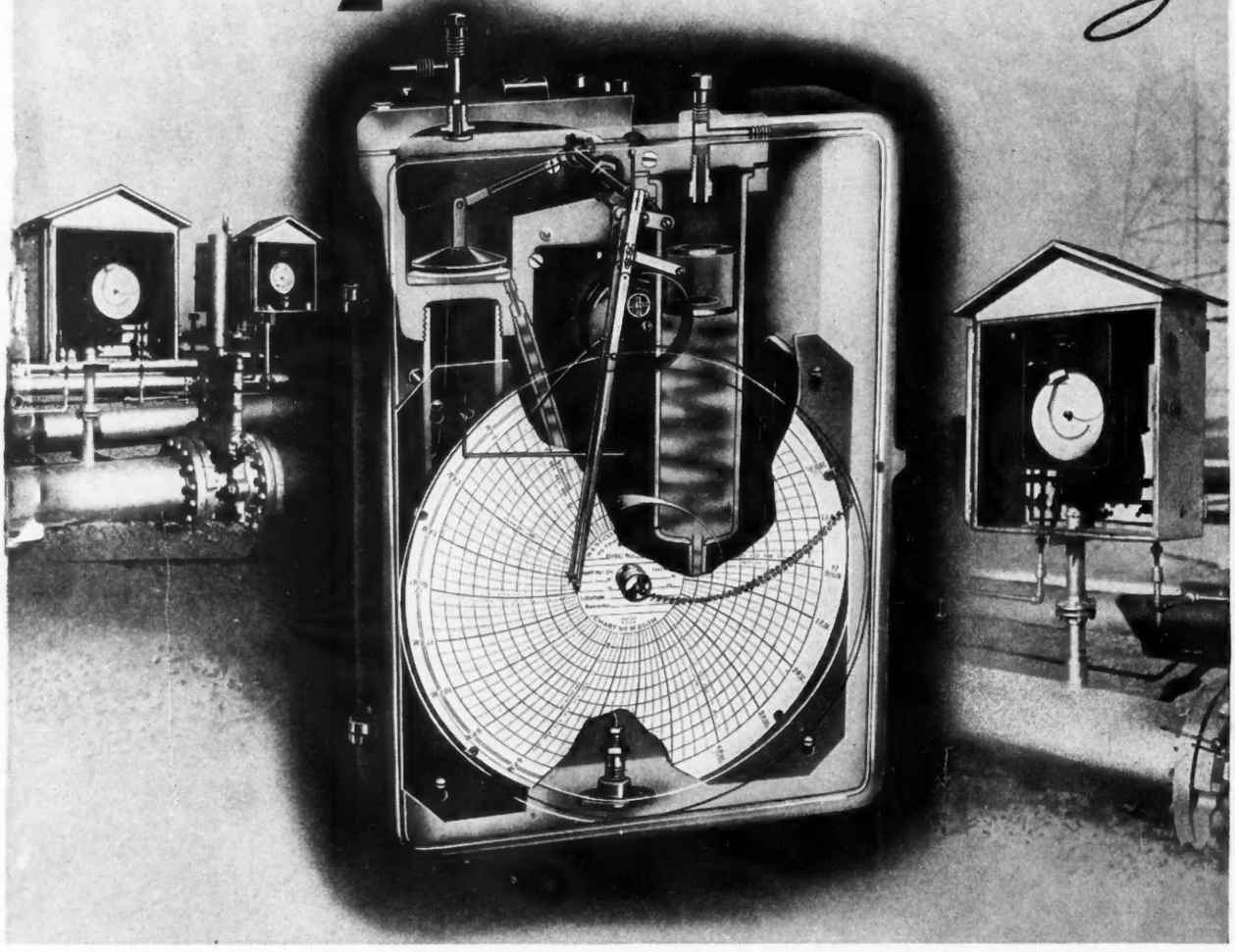

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New literature gives complete data. It will be mailed on request. Also, information on the new popular Round Case Indicating Flowmeter.

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Rodessa's Outlook

ADDITIONAL EXPANSION, BIG RECOVERY AND LONG LIFE ARE INDICATED

By BRAD MILLS, Associate Editor

THE Rodessa field in less than 16 months has firmly established itself as a major producing area. From every standpoint the field should be recognized as a market factor, with a number of complications not common to fields located wholly within one state. The area undoubtedly represents one of the most important oil reserves opened during the past five years, and the possibility of important extensions enhances the future outlook of a field that was slow to gain full recognition.

The action of wells during the past 14 months, admittedly a very trying and difficult production period, indicates a reservoir energy that will account for a heavy flowing production during the next two years. The abuse of two intensely developed sections of the field was enough to dissipate the flowing energy of less vulnerable areas, yet the formation pressure did not drop to a critical level during the period of greatest gas waste. The field has been producing long enough to earn a position among the major areas of the country.

Recognition of the Rodessa field came slowly, due to the belief of many geologists and operators that lime production in North Louisiana never would be a factor in the state's output of light oil. The performance of early completions and the uniformity of formation conditions soon reflected the potentialities of a field that was destined to take front rank among Louisiana producers. The discovery well was regarded by many for a time as a freak, but its subsequent performance and the completion of additional wells dissipated this early belief.

The Rodessa field now has over 400 producing wells and a prorated daily production of almost 70,000 barrels. The field is more than 16 miles long, more than a mile wide in many places, and has not been defined on either end. Besides being open on both ends, the field is definitely open along the north flank wherever drilling requirements have not been severe and operators have delayed development. This means that the field ultimately will cover a considerably greater area than is now productive. It has not been necessary to extend the field to its entire width along half of its length. The producing limit has been fairly well defined on the northeast end of the field, but it is open on the southwest end. The filling-in tendency along the north flank ultimately will give the field a much more uniform width than it now has.

Rodessa, at the time of the discovery well completion, was classed as a Louisiana field. There had been evidence for years that the structure extended well into Texas, but the heavy production of gas on the Louisiana side had branded the field as typically a Louisiana institution. Extension of the field into Texas soon added to the productive acreage and substantiated the theory that ultimately 50 percent of the productive acreage might lie in Texas.

It is through comparison that Rodessa shows to greatest advantage. The field already has a greater prorated daily production than Long Beach, Conroe, or the Texas Panhandle, and is not far behind Kettleman Hills, California's leading producer. The production rise has been steady since completion of the first group of producers.

Crude Is Desirable

Rodessa crude oil is a far more desirable product than early field reports indicated, as evidenced by recent efforts to obtain contracts for future deliveries. The oil has a 100 percent paraffin base, has a gravity range from 42 to 46 degrees, and offers the large refiner a number of valuable characteristics. The field largely owes its important position in the economic picture to the quality of the oil. Several of the first objections advanced were more mythical than real, and Rodessa crude should be classed among the most desirable in the country.

Although the octane rating of straight run gasoline made from Rodessa crude is low, the cracked gasoline meets all average requirements. The first distillation tests created a false impression as to the economic importance of the field. Since it is necessary to use only a light cracking process to manufacture a high grade motor fuel, the early objection to the crude as straight run stock has been overcome. The cracked gasoline shows a 72-74 octane number and is in good demand as a No. 1 non-premium product. The oil cracks readily under low pressures and temperatures, and yields a high percentage of excellent lubricating stock.

There are two sides to the market picture, when the characteristics of the oil are considered. The fact that Rodessa crude oil makes a mediocre gasoline on a straight run (distillation) basis is enough to discourage the small refiner who ordinarily throws large quantities of "quick" gasoline on the market. Such gasoline usually is made in small "pot and pan" refineries that must operate on crude oil that yields a good gasoline on a distillation basis. The motoring public now demands a better gasoline than can be made in small refineries from crude oil that does not have the necessary characteristics.

On the other hand, Rodessa yields a crude oil that exactly fits into the operations of large refiners who have ample cracking facilities. This means that the oil will be utilized fully, but that it will fall chiefly into the hands of refiners who will not flood the market with

low grade, straight run gasoline. All the large integrated companies are equipped to handle Rodessa crude oil, a product that yields good cracked gasoline and a balanced lubricating stock. While every barrel of this oil will replace a barrel of oil that might have been produced elsewhere, its utilization will come about in a conservative manner. Most of the oil now produced in the field is being taken by large interests that will either control or influence the distribution of refined products made from it.

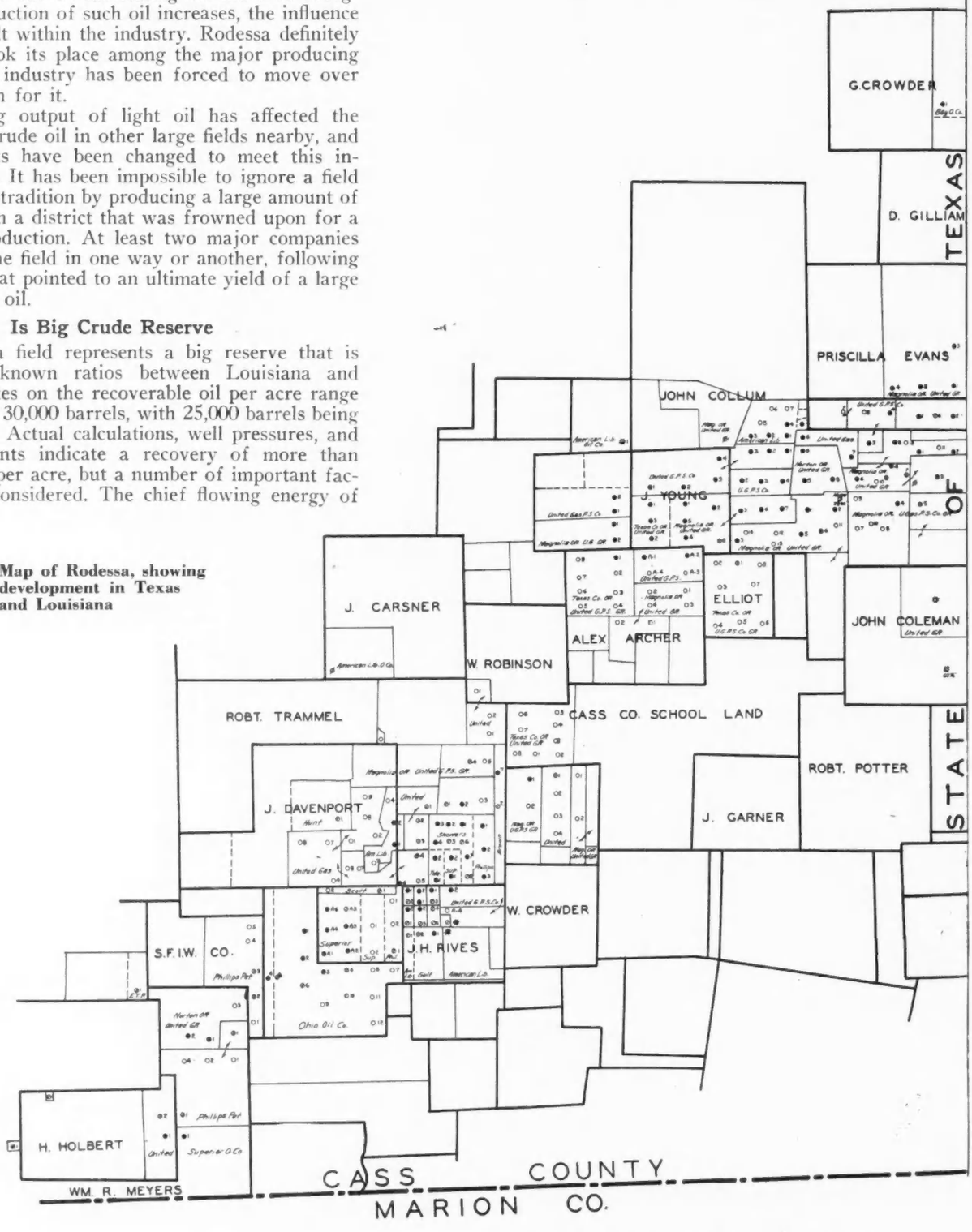
Any crude oil that yields a good grade of gasoline and a desirable cut of lubricating oil must be recognized. As production of such oil increases, the influence of a field is felt within the industry. Rodessa definitely arrived and took its place among the major producing areas, and the industry has been forced to move over and make room for it.

The growing output of light oil has affected the movement of crude oil in other large fields nearby, and major contracts have been changed to meet this increased supply. It has been impossible to ignore a field that has defied tradition by producing a large amount of oil from lime in a district that was frowned upon for a stable lime production. At least two major companies have entered the field in one way or another, following development that pointed to an ultimate yield of a large output of light oil.

Is Big Crude Reserve

The Rodessa field represents a big reserve that is divided in unknown ratios between Louisiana and Texas. Estimates on the recoverable oil per acre range from 18,000 to 30,000 barrels, with 25,000 barrels being a fair average. Actual calculations, well pressures, and water movements indicate a recovery of more than 20,000 barrels per acre, but a number of important factors must be considered. The chief flowing energy of the field is derived from a gas cap and water drive, and obviously these forces play important roles in recovery calculations. Early dissipation of the gas energy and an accompanying encroachment of water would sharply reduce the ultimate recovery of oil.

The field now is 16 miles long, and the ultimate length may exceed 18 miles. By giving the oil productive strip an average width of one mile, the field would cover an area of 11,520 acres. With an average ultimate recovery of 20,000 barrels per acre, this would give the field an ultimate yield of 230,400,000 barrels. There is the pos-

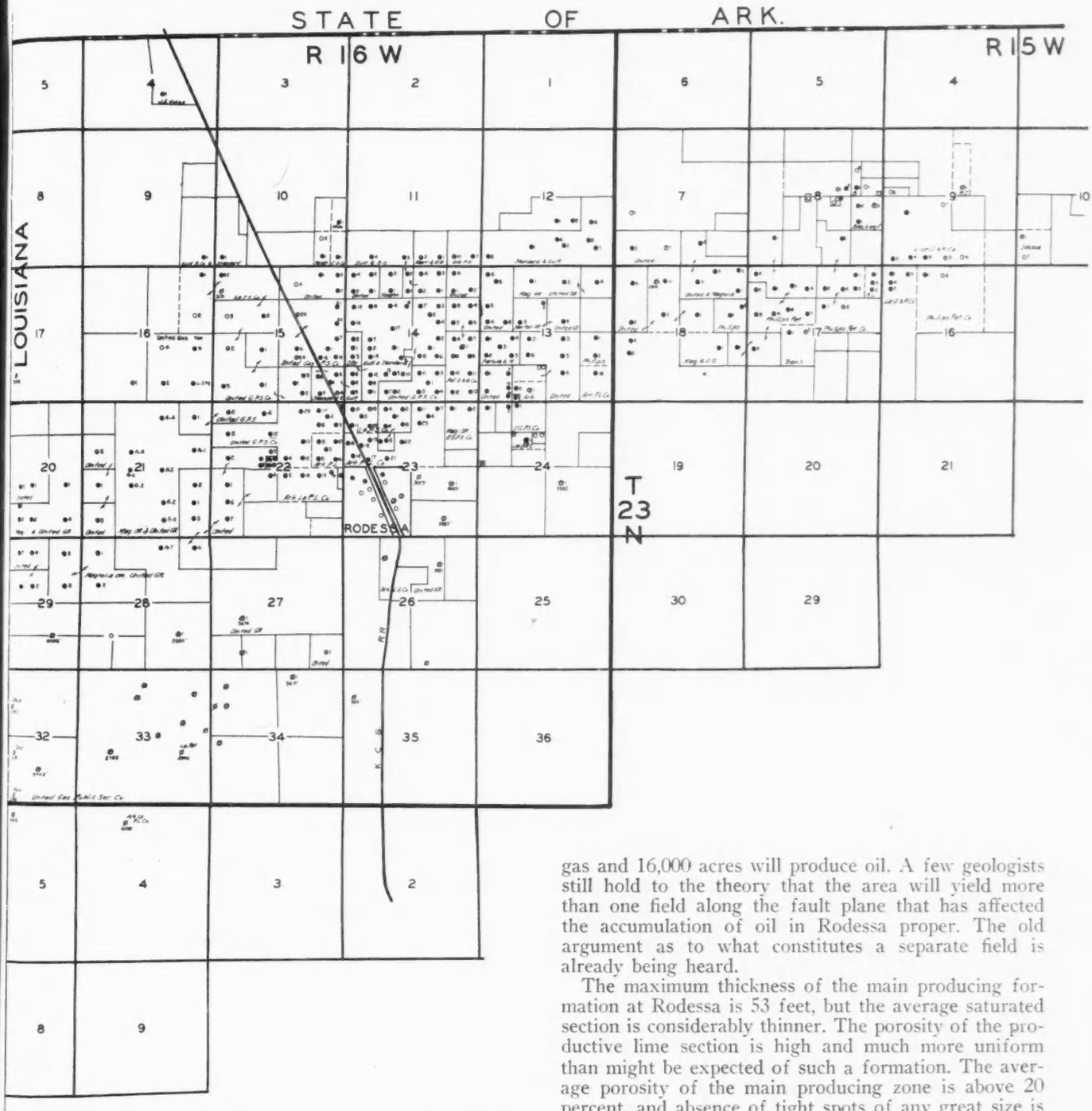


Map of Rodessa, showing development in Texas and Louisiana

sibility, however, that the oil productive area will exceed 16,000 acres, which would give the field an average width of nearly 1½ miles. Such an ultimate productive acreage would increase the importance of the field as a reserve. Average estimates place the maximum oil productive area at 15,000 acres.

The field has not been developed to its full width or length on the Texas side, and only additional drilling can define the producing limits on the north flank and the southwest end. It now looks as if the productive acreage ultimately will be about evenly divided between Louisiana and Texas. Development on the Louisiana side has predominated because of several acute factors that forced intensive drilling. Development on the Texas side has been confined to a narrow strip that has yielded good wells, but more intensive development on the north flank should be expected.

One geologist has placed the ultimate productive area at 24,000 acres, of which 8000 acres will produce only gas and 16,000 acres will produce oil. A few geologists still hold to the theory that the area will yield more than one field along the fault plane that has affected the accumulation of oil in Rodessa proper. The old argument as to what constitutes a separate field is already being heard.



The maximum thickness of the main producing formation at Rodessa is 53 feet, but the average saturated section is considerably thinner. The porosity of the productive lime section is high and much more uniform than might be expected of such a formation. The average porosity of the main producing zone is above 20 percent, and absence of tight spots of any great size is conspicuous. The formation also stands up well and no large breaks, fissures or pockets have been found in inside wells.

Estimating the number of productive acres or the ultimate recovery of oil falls definitely in the realm of speculation, but as an oil reserve Rodessa easily holds first rank in Louisiana, and is a factor in northeast Texas. The oil industry is chiefly interested in the potentialities of any producing field, since the approximate number of barrels in line for production must be considered when planning future operations. The field still

is open on both ends, and definitely will be much wider along more than half of its present width. Production probably will not extend much farther to the northeast, however.

Curbing Gas Wastage

The original bottom-hole pressure was about 2700 pounds in inside wells. The average bottom-hole pressure for the field has shown a modest decline, when the wasteful production practices that occurred in some parts of the field are considered. The bottom-hole pressure now varies from 1600 to 2650 pounds, and the decline has been slow in the conservatively developed areas. The bottom-hole pressure drop was rapid on the Louisiana side during July, August and September, due to high allowables and gas waste. A pressure drop of three pounds per day was recorded during parts of July and August, while during September the decline was about 2.6 pounds per day. The comparatively rapid decline during the late summer and early fall months might be classed as the final spasm of unrestrained gas waste that, in turn, resulted in a weakening of reservoir energy.

Gas Waste Order

The Louisiana Conservation Commission on September 15 issued an order limiting oil wells to a gas production of 3,000,000 cubic feet, and gas-distillate wells to a gas production of 6,000,000 cubic feet daily. A maximum gas/oil ratio of 12,500 to 1 was established for oil wells, this limit having been based on a well allowable of 240 barrels. The gas-distillate wells obviously were given a maximum gas/oil ratio of 25,000 to 1, which would give a top gas production of 6,000,000 cubic feet for 240 barrels of oil or distillate.

Enforcement of this conservation order resulted in the reduction of gas waste from about 600,000,000 cubic feet to less than 300,000,000 cubic feet daily. The order was so effective that it was continued for a second month, and further continuation of the plan on a modified scale is expected.

The high gas/oil ratio in a number of wells prompted operators to start remedial measures. The townsite part of the field, where wells have been completed on very small and irregular tracts, has presented a serious gas/oil ratio problem. Several wells drilled during the early development period were completed with the shut-off casing string above the bottom of the Dees formation, the third of the gas producing horizons and one that produces oil down-structure. Several operators have run short casing strings to shut off this troublesome formation, since it originally was included to avoid shutting off any producing possibilities. All the more recent completions have excluded the Dees sand where it carried gas.

A potential test of most of the producers on the Cass County, Texas, side of the field showed an average gas/oil ratio of 660 to 1, and the highest gas/oil ratio taken was less than 1300 to 1. This lower gas/oil ratio may be attributed to a definite line-trend development and to proper completion methods. The Louisiana side of the field showed a much higher gas yield because of the early haphazard completion methods and more extensive development. The amount of gas in solution per barrel of oil is about 525 cubic feet. All producers on the Texas side are far below the 2000 to 1 gas/oil ratio allowed by the Texas Railroad Commission, and one well showed a gas/oil ratio of 310 to 1.

Distillate Production

There has been some doubt as to the wisdom of allowing "distillate" wells to produce in competition with legitimate oil wells, since the greatest gas waste should be charged to wells that virtually produced gas along with condensate. It was necessary to produce excess gas to obtain the allowable of distillate. A further correction of this evil has been promised by operators.

Salt water has given less trouble than should be expected in a field producing from a porous limestone. Some of the first water reported apparently came from lenticular sands above the principal producing zone, but it is known that bottom water has given some trouble where too much formation was included. About 60 wells are showing water in varying amounts, but most of the early completions that avoided the danger mark have shown no salt water. The water cut ranges from less than one percent to 90 percent in an extreme case. Water has been pulled into at least two small areas where overproduction of oil and gas waste have occurred. The normal water level is found at a sub-sea depth of 5783 feet. A coning effect has been observed in two sections of the field, but recent remedial measures have checked this encroachment. Few wells on the Texas side of the field have shown salt water, a fact that speaks well for conservative development. A study of well pressures, gas/oil ratios, water encroachment and intensity of drilling reveals a favorable producing condition on the Texas side.

An earnest effort is being made to place the field on a safer production basis, as shown by the sharp reduction in gas waste. Most of the producing companies realize that the field derives a good part of its producing energy from the gas cap, and because of the porous nature of the producing formation, conservation of gas is important. The greatest gas waste has been shown by wells completed too near the gas-oil contact, or by producers with the shut-off string cemented too high.

Every well in the Rodessa field is a flowing producer, an unusual condition for an area with 400 completions. The influence of gas is reflected by the ability of all wells to flow. The field originally produced gas up-structure.

Tests for well allowables revealed a number of interesting producing conditions in various sections of the field. The gas/oil ratio on the Louisiana side ranged from 400 to 100,000 cubic feet per barrel, and the gravity of the oil ranged from 38 to 60 degrees. During the tests the tubing and casing pressures were almost identical in the extremely high gas/oil ratio producers, averaging about 1300 pounds in inside wells. In a few of the very low gas/oil ratio producers the tubing pressure was as high as 825 pounds and the casing pressure 1425 pounds.

Rodessa should still be considered a high pressure producing area, since the pressure drop has not seriously affected the flowing status of inside producers. Although the pressure decline was almost three pounds daily during the period of greatest gas waste, it has been reduced to about 2¼ pounds daily at this time. During August the daily pressure decline was almost three pounds, during September it was reduced to 2.64 pounds, but during October the average daily decline was only 2.37 pounds. All these calculations apply to the Louisiana side of the field, where development has been heaviest. The average bottom hole pressure Novmber 1 was 2005 pounds on the Louisiana side.

The rate of pressure decline was sharply reduced by the application of the 12,500 to 1 gas/oil ratio to oil

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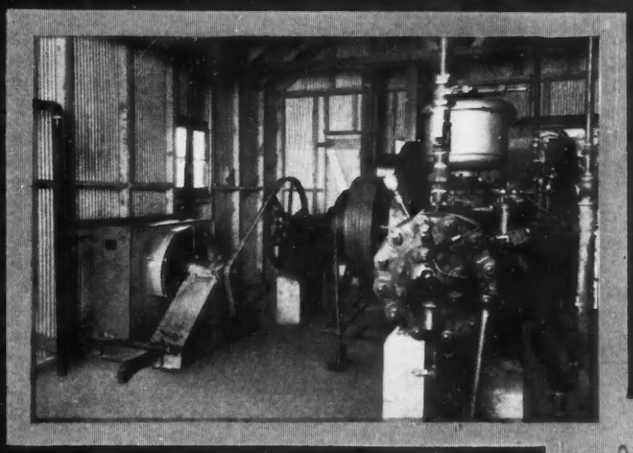

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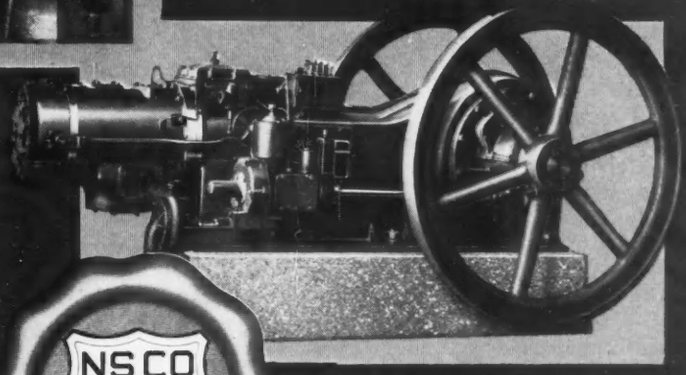

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wells and a 25,000 to 1 gas/oil ratio to distillate wells. Prior to use of a definite gas/oil ratio maximum the pressure drop has reached three pounds daily. The gas waste at one time was estimated at 600,000,000 cubic feet daily, but the most recent estimates placed the excess at only 250,000,000 cubic feet daily. The gas waste is being rapidly reduced by enforcement of the gas/oil ratio order and remedial work. Gas production was reduced more than 100,000,000 cubic feet by lowering casing in a dozen wells.

Geology Is Interesting

The geology of the Rodessa field is interesting, and recent developments give it a more complex status than was indicated during the earlier drilling period. Production is obtained near the top of the Lower Glen Rose of the Lower Cretaceous, a formation that carries gas in a few northwest Louisiana areas. Production extends about 450 feet down dip from the highest point on the structure, which is the fault line. Only gas is found on top of the structure, with the oil being found along a belt about 1½ miles wide and lying down dip to the 450-foot level. The best oil production has been developed at about 6000 feet in the lower section of the upper third of the Lower Glen Rose.

The base of the massive anhydrite is found at a sub-sea depth of about 5280 feet. Immediately below this formation, which is about 250 feet thick, lies a series of black shales and broken oolitic lime that has a thickness of less than 60 feet. The first lower anhydrite stringer has a thickness of about 85 feet and extends to a sub-sea depth of 5425 feet. This stringer carries lenses of black shale and fossiliferous limestone.

The Hill sand, which has a thickness of 10 to 40 feet, is the uppermost producing zone in the field. Although this sand is found all over the field and it is fine-grained and fairly uniform in porosity, its questionable thickness in places has minimized its importance. It principally carries gas. The second anhydrite stringer is found immediately below the Hill gas zone and has an average thickness of about 75 feet. This stringer is very tight and definitely separates the Hill sand from the underlying Gloyd (Caddo Levee Board) zone.

The Gloyd zone yields gas and oil and has a maximum thickness of 86 feet. It is normally found between the sub-sea depths of 5576 and 5658 feet. It consists chiefly of oolitic limestone but is occasionally broken by thin shale and sand beds. The principal sand body is found near the base of the zone. The porosity of the oolitic lime varies with the locality, but it is more uniform than might be expected of a lime formation. The sand section has a maximum thickness of 20 feet.

Immediately below the Gloyd zone lies a 50- to 60-foot section of impervious, vari-colored limestone that serves as a definite barrier between the Gloyd and the Dees zones. The Dees formation, the principal producing zone in the field, lies immediately below this impervious limestone. The Dees sand, which is only a small part of the Dees horizon, has a thickness of about 15 feet, and with the occasional coquina forms the uppermost part of the producing section. Other formations are the principal coquina limestone and the lower oolitic limestone. The thickness of the entire Dees horizon is less than 90 feet. It normally occurs between the sub-sea depths of 5715 and 5785 feet, although in inside wells it might be found slightly higher. All the above depths apply to the Louisiana side of the field, where development has been heaviest. The Dees sand varies from a true sand to a very sandy limestone, and in the latter extreme it is interbedded with shale. The coquina limestone is very porous, while the oolitic sandy lime section that completes the lower part of the Dees horizon is extremely porous and "mealy."

Drilling Practices

Heavy type drilling and production equipment has been used exclusively at Rodessa. The drilling time and well costs were sharply reduced during the first six months of development, but the average completion time has not changed much during the past six months. The average drilling time for the first group of wells was about 70 days, but that average was gradually reduced to about 40 days. One well was completed in about 25 days, but this time was an exception.

Hard formations predominate at Rodessa, and from 65 to 85 percent of the drilling is done with rock bits. From 14 to 30 rock bits of different sizes are used in drilling each well. One operator has averaged 24 rock bits per well, while one drilling contractor has used from 14 to 20 bits of this type. Drilling usually is started with drag bits, and the most recent record showed the use of three drag bits, 28 rock bits and 12 hard formation coreheads during the drilling of a single well. Such a number was far out of line with the average drilling operation, however. The hardness of the formations varies in different parts of the field, and drilling time and equipment used are affected by these conditions.

Several casing programs have been followed at Rodessa. During the early development period several casing strings were stuck because of the limited clearance in hard formations below the intermediate shutoff casing string. Many of the first wells were started with a 19-inch hole and drilled to around 400 feet, at which level the 13⅜-inch casing was cemented. A 12¼-inch hole was drilled to around 2200 feet, where the 9⅝-inch casing was cemented. An 8¾-inch hole was then drilled to about 5950 feet. It was during the running of 7-inch casing in this 8¾-inch hole that most of the trouble developed in hard formations.

One of the most satisfactory drilling and casing programs calls for a 22-inch hole from the surface to the first cementing point at about 400 feet, where 16-inch casing is cemented. A 15-inch hole is drilled to about 2200 feet, at which depth the 10¾-inch casing is cemented. A 9⅞-inch hole is drilled to about 5950 feet, where the 7-inch casing is cemented without difficulty because of the increased clearance afforded by the larger hole below the 10¾-inch casing shoe.

Completion of the average Rodessa well is not an exacting operation. Liners are run and landed on bottom, usually without packers. A J-tool is used for running and setting liners. Most of the wells are completed with 2½-inch tubing, the landing point being from 20 to 5 feet off bottom. The producing formation gives little trouble and a few wells have been successfully completed without liners.

Flow connections at the well are of the high pressure type, but operators have made an effort to simplify the Christmas tree assembly. The wells produce through chokes ranging from 7/64 to ¾ of an inch in diameter.

The rotary drilling equipment used at Rodessa is similar to that used in California and the Gulf Coast for drilling to 7500 feet. Steam has been used almost exclusively in this field, due to local conditions that favor this type of power.

The field on both the Texas and Louisiana sides is still under intense development and activity in the immediate future is not due for a decided decline. There are now more than 100 active operations and possibility of new extensions has added interest to a field that already has become a major producer.

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METAL TESTED	PERCENTAGE COMPOSITION					
	Copper	Tin	Lead	Phos.	Arsenic	Relative Wear
Phosphor bronze (standard)	79.70	10.00	9.60	0.80	0.0	**1.00**
Ordinary bronze	87.50	12.50	0.0	0.0	0.0	**1.49**
Arsenic bronze "A"	89.20	10.00	0.0	0.0	0.80	**1.42**
Arsenic bronze "B"	82.20	10.00	7.0	0.0	0.80	**1.15**
Arsenic bronze "C"	79.70	10.00	9.50	0.0	0.80	**1.01**
Bronze K-1	77.00	10.50	12.50	0.0	0.0	**0.92**
Bronze K-2	77.00	8.00	15.00	0.0	0.0	**0.86**
Bronze K-3	75.00	5.00	20.00	0.0	0.0	**0.70**
Bronze K-4	70.00	5.00	25.00	0.0	0.0	**0.58**
Bronzoid "79"	70.00	10.00	20.00	0.0	0.0	0.17
Bronzoid "76" (standard)	70.00	6.00	24.00	0.0	0.0	0.11
Bronzoid "74"	70.00	4.00	26.00	0.0	0.0	0.09
					zinc	
Bronze "Z"	77.38	5.62	11.42	0.0	6.54	**1.94**

In each of these tests, the bearing had a projected area of one square inch, and was run for 30 minutes on a dry shaft of cold rolled steel. Load 1000 pounds; speed 900 r.p.m.; no lubrication of any kind. Bearings weighed before and after test to determine relative loss. TESTS RESULTED IN SCORING OF SHAFT AND BEARING IN EACH CASE EXCEPT WHERE BRONZOID WAS USED!

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Petrographic and Physical Characteristics

OF SANDS FROM SEVEN GULF COAST PRODUCING HORIZONS

By M. T. HALBOUTY,
Chief Geologist and Petroleum Engineer,
Glenn H. McCarthy, Inc., Houston, Texas

A STUDY of the petrographic and physical characteristics of sands in the Gulf Coast region of Texas and Louisiana conducted for the purpose of determining whether or not sands of certain geologic zones and formations may be distinguished as "that or this" zone by this means.

Part 1 appeared in THE OIL WEEKLY, November 23, and part 3 will appear next week.

PART II

Laboratory Procedure

A TOTAL of 315 samples were studied; 45 samples were of cuttings, and 270 samples were cores. The samples were equally divided from the seven zones studied, so that a percentage estimate could be calculated easily. Each sample was subjected to an examination for texture, shapes of grains, mineral composition, and permeability. The study of the samples were conducted on similar procedures reported in many papers on such studies.[4, 5, 6, 7]

Texture Procedure

The texture of each sample was determined by sieving in openings of 1.981 millimeters (10 mesh), .833 millimeters (20 mesh), .589 millimeters (30 mesh), .295 millimeters (50 mesh), .147 millimeters (100 mesh), .074 millimeters (200 mesh). Separations gave seven sizes which were of sufficient openings to give the desired result. The separation of each grade size was recorded carefully in percentage weight of the total sample and recorded and filed in small envelopes. The results were then compiled after all samples were sieved in respect to their geologic age and plotted on charts, Figures 1 to 48 inclusive, known as histograms to show the percentage of grade sizes in each geologic zone. These figures will appear in later installments of this series.

Special attention was upheld in the sieving of each sample in that the sieves were shaken very vigorously for approximately 10 minutes. Each catch on each mesh size was poured carefully onto a large sheet of paper which was then used as a funnel to pour the grains in a graduated cylinder for further measurements. Two-hundred grams from each sample was used as the initial amount sieved and the corresponding amount on each screen was correspondingly weighed to give each mesh percentage. The sample before sieving was shaken together carefully so that a representative sample was used from each sand. After each grain size was weighed and recorded for its percentage, the sizes were mixed together again, shook in a vessel well, and sieved again to check the results of the first sieving. At no time was there more than one-tenth of one per cent difference in the two readings. This second reading was taken in order to determine whether or not the intensive shaking during the first sieving had worn or rubbed off minute edges from the grains that would enable them to pass through any particular mesh on the second sieving. No doubt was had as to the accuracy of the first sieving, but such a thought of rechecking due to abrasive action was done to satisfy curiosity.

Shape Procedure

The shapes of the grains are classified in this paper as *round, sub-round, sub-angular,* and *angular.* A representative amount from each sample was subjected to careful count in the microscopic field and by counting each grain on a north-south, east-west, northwest-southeast, and northeast-southwest lines, the shape of each grain was recorded as well as the number. Several amounts from one sample would be recorded. Such a procedure, although not as efficient as photo-micrographs, gave excellent results, as over a total of 300 grains were recorded from one sample. The percentage of the total of each shape taken in regards to a compiled average of each geologic zone was plotted on the histogram graphs shown in Figures 49 to 82 inclusive, which will be published in subsequent installments of the series.

In determing the extent of the shape of the grains, special care was exercised in the reflected light on the specimens. Instead of having one microscopic light shining on the microscopic field from only one direction, two lights were set up on the left and right of the microscope. Two lights were used so as to avoid shadows that may be present on the dark side of the

[4] John T. Lonsdale, M. S. Metz, and M. T. Halbouty, "The Petrographic Characters of Some Eocene Sands from Southwest Texas," *Sedimentary Petrology,* November, 1931, pp. 73-81.

[5] William A. P. Graham, "A Textural and Petrographic Study of the Cambian Sandstones of Minnesota," *Journal-Geology,* Vol. XXXVIII, pp. 696-716, 1930.

[6] A. C. Trowbridge and M. E. Mortimore, "Correlation of Oil Sands by Sedimentary Analysis," *Economic Geology,* Vol. 20, No. 5, pp. 490-423, 1925.

[7] K. H. Clough, "A Study of Permeability Measurements," OIL WEEKLY, Vol. 83, No. 5, Oct. 12, 1936, pp. 54-58.

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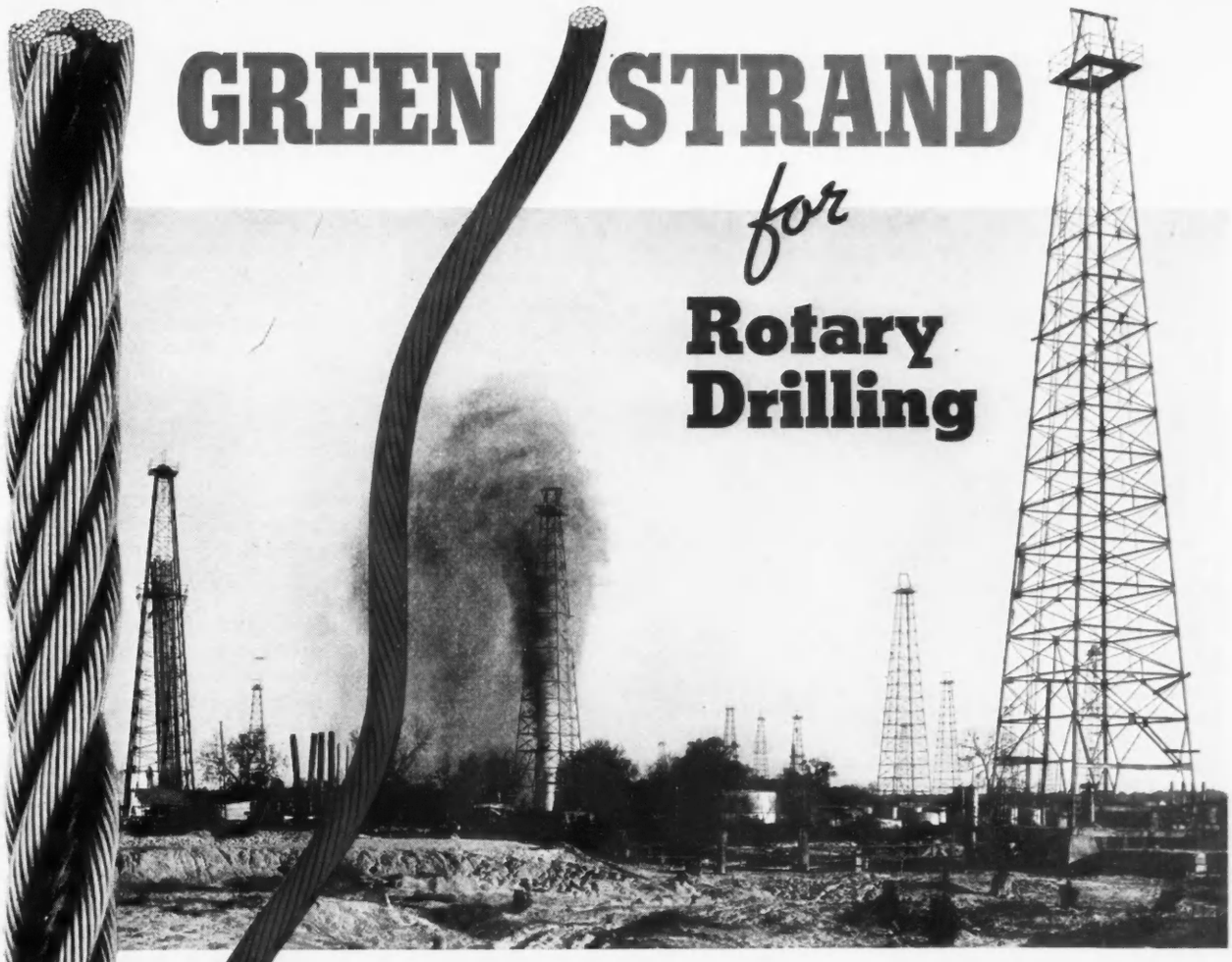

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grains which would influence the exact determining of the shape of the grains. The shapes of the grains would be determined by these lights being placed on the left and right then they would be moved from one angle to another so that a complete reflection of the grains was visible for the final count. This procedure took considerable time, however, the results were extremely accurate and such time was importantly, as well as efficiently, spent.

The grains sometimes would give some difficulty in determining the exact shape, or the graduation from one shape to another was very close and it was confusing as in what class to place the "close" grains. For instance, some of the grains would be rounded on one side and sub-angular to angular on the other. In that case the grains were called sub-angular. There were some grains that could easily be called "rounded", but there were minor variations in the perfectness of being round in that the grains were slightly oval with indentations, so they were termed as sub-rounded. The rounded grains were so called only when no variations nor indentations were visible —that is, they were practically perfectly round. The sub-angular grains were, of course, those that were slightly sub-rounded on some ends and angular on others, while the angular grains were distinctly angular with all sides broken, chipped, or, as some were, flat and pyramidal. It was not difficult to distinguish the angular and sub-angular grains as the reflected light clearly showed the angular faces. What difficulty that was encountered was only in the rounded and sub-rounded grains and they were decided strictly as a matter of opinion. What the author probably called rounded might be termed by someone else as sub-rounded and vice versa.

As each grain on the above mentioned cross lines were termed in regard to shape, a mark was made next to the shape symbol on paper. After each sand sample was completed, the number of marks opposite the shape symbols were counted and the percentage compiled from the total number of grains recorded which ranged from 278 to 316 grains.

Mineral Procedure

By the use of Bromoform the minerals of the samples were separated into a light concentrate and a heavy concentrate. Each concentrate was studied with the petrographic and binocular microscopes. Estimates were made of the relative amount of each mineral found by counting 100 or more grains in the microscopic fields. The quantitative symbols used are rare (1 to 10 percent), common (10 to 20 percent), abundant (20 to 50 percent), and very abundant (more than 50 percent of the concentrate). The amount of concentrate obtained was not weighed, but was expressed by use of the terms large, medium, and small.

In the microscopic identification of the minerals a number of observations were necessary to record, and each observation was tabulated for later determinations and conclusions. A systematic procedure was followed beginning with the color of the mineral. Some minerals were opaque and others showed a marked and distinct color, which might or might not be pleochroic. If the mineral was pleochroic, special care was exercised in determining the color of the pleochroism. Pleochroism may be termed as the property of absorbing light of different rays in different directions. The form of the mineral was next noted. In some instances the form of one mineral would vary in different samples, that is for instance, *chalcedony* was found to be amygdaloidal, mosaic, banded, and as aggregates. These differences of the forms of like minerals were noted especially. The cleavage of the mineral would be next determined. Some had marked cleavage planes and in others cleavage was absent. The index of refraction of the mineral would next be noted and this can be approximated from the appearance of the surface. A mineral with strong refraction appears to have a rough surface or high relief and to stand out among other minerals. A mineral with weak refraction also shows relief, but not so prominently. Minerals with medium refraction appear smooth and show no relief. As all the minerals were mounted in balsam, which has an index of refraction of 1.537, the comparative determination was made from this substance. The index of refraction of a mineral would be measured by removing the analyser, polarizer, and condensing lens of the microscope. The diaphragm was lowered to a relatively small stop and the concave mirror was used with a high objective. The contact line between the mineral and the balsam on the slide was focused, and the focus point and light were adjusted so that both sides of the contact were equally illuminated. The broader the line, the greater the difference in strength of refraction. The index of refraction of balsam was used as the dividing medium from low and high refractions. Where it was necessary, the immersion method was employed. Isotropic crystals, those possessing no double refraction, and anisotropic crystals, those possessing double refraction, were also determined.

Extinction of the mineral was also observed, i.e., when a mineral is so turned around on the microscopic stage that no light passes through the crossed nicols, extinction is said to take place. When the direction of extinction is parallel to some determinable crystallographic axis, the mineral has *parallel* extinction, *symmetrical* extinction, or *straight* extinction. When an angle exists between the direction of extinction and the observed crystal direction, the extinction is *oblique*, and the amount of extinction angle may be read from the stage and recorded. If the extinction does not take place sharply over the whole crystal at once, but passes over it like a shadow, then the extinction is *wavy*, and wavy extinction indicates that the crystal has been strained. A number of the minerals were observed to have wavy extinction. There were some minerals to *twinkle* when the stage was rotated, and these are known to have *aggregate* extinction.

Interference figures were also observed by using the objective with the highest power and centering the mineral fully. A focus would be taken on a thick section of the specimen and the nicols would be crossed. The convergent lens would next be swung into position below the stage and the Bertrand lens slid into position in the tube. This set-up would give a picture of the mineral formed by the high magnification of the image produced by polarizing convergent light.

Other observations were noted in order to clearly identify a mineral and the observations were recorded in table form as shown in Table 2.

However, before listing this table, a brief resume should be given concerning the kind of light used and the results obtained in using the petrographic microscope by these lights. *Plain, polarized parallel,* and *polarized convergent* lights were used. With *plain light* one can see the color, crystal outlines and the relative index of refraction of a mineral.

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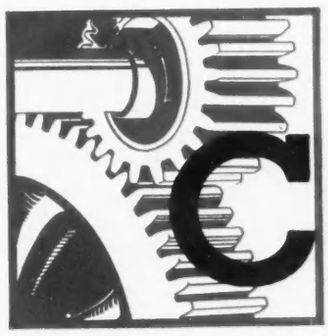

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Marion
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Winfield

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Great Falls
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With *polarized parallel light* one can see pleochroism, one nicol: cleavage and fracture, true index of refraction; crossed nicols: (a) twining and zoning, (b) extinction angle, (c) cleavage and fracture, (d) and interference colors. With *polarized convergent light* the interference figures can be obtained.

In using the procedure of observations outlined in Table 2, the mineral *zircon*, which was commonly found in the sand samples, and its petrographic characteristic is used to illustrate the manner in which observations were recorded on each kind of mineral.

TABLE 2
Petrographic Observation Outline

DESCRIPTION OF THE MINERAL TO BE IDENTIFIED:
Brownish-red mineral; a prism capped with a pyramid at either end.
Opaque.....*No*..... Color (if opaque).....
Transparent..... *Yes*.....
PROPERTIES IF TRANSPARENT:
Color..... *Brownish-red* .....
Pleochroism.....*Yes, Two colors*.....
Shape or form.....*Prismatic, tetragonal prism capped with a pyramid at either end*
Cleavage..... *absent* .....
Indices of refraction.....*Nw=1.925;*.....*Ne=1.987.*
Isotropic..... *No*..... or Anistotropic.....*yes.*
If Anisotropic:
Birefringence or double refraction.....*0.060—0.062, High.*
Twinning (if present).....*None*.....
Elongation (if any).....*None*.....
Optical Classification:
Uniaxial: ..... *Yes*.....
Positive.....*Yes*..... Negative.....*No*
Biaxial: .....*No*.....
Positive ..... Negative.....
2V..... or 2E.....
Dispersion .....
Optical orientation.....*Length—slow:*.....*tetragonal.*
Conclusion.....*The mineral is Zircon*.....

Permeability Procedure

In determining the permeability measurements, precaution was exercised in the quality of the cores. The cores selected are considered representative of the particular formations from which the samples were obtained. In making the permeability determinations, in as many cases as were possible, two samples were taken immediately adjacent to one or more in order that the determination of both horizontal and vertical permeability could be made on samples indicating the same sand characteristics. The procedure used for the permeability determination is as follows: A sample being a cross-section of approximately two or more inches is essential since the core cut with a diamond core drill on a drill press table is of 1.67 square centimeters cross-section area. The length of the cores thus cut is dependent upon the length of the core that it was possible to obtain. In many cases the length was approximately 2.5 centimeters. The length, of course, can be varied between wide limits, a minimum length of one centimeter and a maximum length of five centimeters being recommended as shorter lengths than this could not be considered as a representative sample due to the possibility of one or more cavities occurring in the sample, which would in turn give a false indication of the permeability of the sample.

In the case of all samples taken, the drilling was done by using oil as a drill lubricating medium, sufficient oil being admitted to thoroughly flood the sample insuring a penetration of the fluid into the surface pore spaces, thus in effect sealing these pore spaces against the admission of small particles of the core which might be forced into the pores by the drill clogging the pores and rendering the permeability determination of little value. The precaution of thoroughly flooding the sample with any liquid can not be stressed too strongly, since only by this means can the true permeability of the sample be determined. Other media than oil can be satisfactorily employed, however, water as a medium is not especially recommended, since in some cases the core sample could possibly be of a soluble nature, thus causing an error through the solubility of portions of the core.

After the samples have been cut on the core drill and the ends of the samples squared on a grinding wheel, remembering, of course, to keep the sample saturated during the procedure, these samples are then ready to be extracted. The extraction process is necessary since all fluids contained in the core, both those present in the core in its original state and those that have been added to the core as a lubricating medium, must be removed from the pore spaces in order that the permeability of the core may be ascertained.

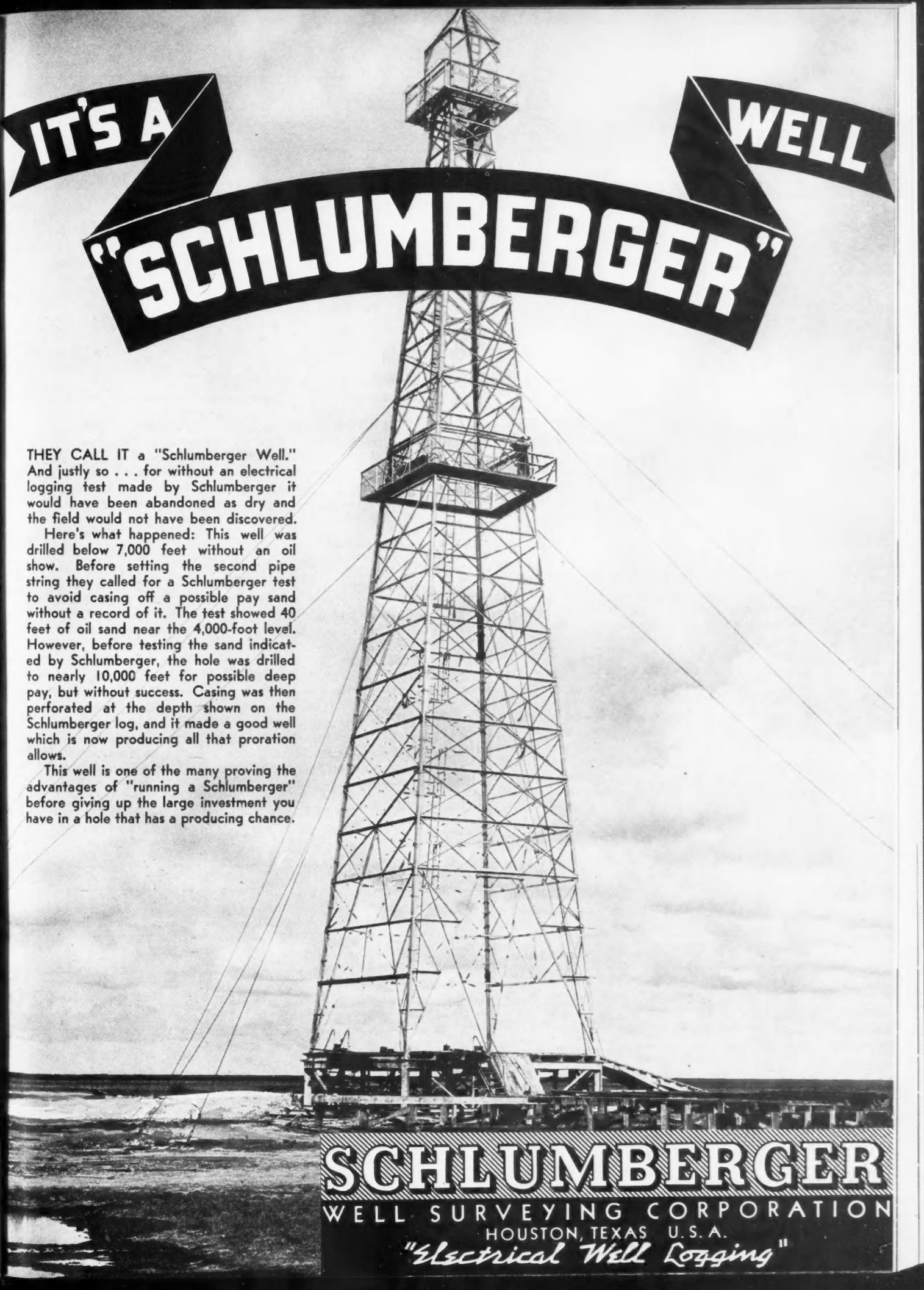
Since no oil content determination was to be made on these cores, they may be extracted in multiple. That is, an extraction tube of sufficient size to hold approximately sixteen of these prepared cores is used. In the work done in this instance Carbon Tetrachloride was used as an extraction medium. However, as has been pointed out in previous articles on the subject of permeability determinations, other solvents may be used as extraction media, care being taken in the selection of solvents to use those which have a marked tendency for hydrocarbon compounds. The extraction process usually requires about four hours, though very porous samples may be freed from the liquid contents in less time, and very impervious samples may require as much as fifty hours for proper extraction. Since it is absolutely essential that all liquids be removed from the pore spaces, one can not emphasize too strongly the importance of carrying this procedure to a satisfactory completion, regardless of the time element. For this reason an extraction apparatus capable of handling at least 16 samples, was chosen as the remainder of the permeability work may be done on 16 samples using them one at a time while the other group of 16 samples are being extracted. After the cores have been freed by the solvent of all their liquid contents, cores are dried at a temperature slightly greater than the boiling point of the solvent. In this case, Carbon-Tetrachloride was used in the extraction.

Approximately one hour is a safe period of drying time. After the samples have been dried, they are now ready for permeability determination. The samples cut for horizontal permeability measurements are grouped, and the samples cut for vertical permeability measurements are likewise segregated. The apparatus used is similar to one described in a recent article[10] the sample being mounted on a rubber stopper containing a round hole of 1.67 centimeters cross-section area, and the air flow through the sample is determined by means of pressures on the up-stream and down-stream sides of the sample using mercury manometers to indicate these pressures. A calibrated orifice is likewise used and the number of cc's of air flowing through the core per minute is obtained from the orifice calibrated chart. This, of course, is applied in the standard for permeability formula, as suggested by the A.P.I., in setting up standards for permeability determinations.

Horizontal and vertical permeability determinations are made in similar manners and the results recorded in terms of millidarcys. These determinations are then recorded in table form, the determinations on samples from the Miocene being recorded in one group, those from the Cockfield in another group, etc.

One hundred and twenty of the best cores, or fifteen from each horizon, were subjected to permeability measurements. The porosity of each core was also taken in order to later determine the relationship of permeability to porosity. The permeability measurements as well as the porosity percentages of these cores will be listed in table form in a later issue of THE OIL WEEKLY.

[10] K. H. Clough, Op. Cit.



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A PRELIMINARY INVESTIGATION OF

Flowing Wells

By EMORY KEMLER and G. A. POOLE,
Gulf Oil Corporation

THE need for information on the flowing life of wells for the purpose of determining when pumping equipment will have to be installed, and a knowledge of the flowing rates at various bottom-hole pressures for potential purposes, makes it desirable to develop some rational method of studying the problem. This discussion will be limited only to the problem of the determination of the minimum reservoir pressure at which the well will cease to flow a given production. The more general problem is the determination of the possible rates of production by flowing after a given amount of withdrawal. Any method of estimating the flowing life must necessarily be based on an assumed behavior of the reservoir. One method of getting an approximate value of the flowing life is shown in Figures 6, 7, and 8. From data taken at various flowing rates the pressure drop in the tubing and sand can be obtained. By adding these two drops the total necessary for any given production can be determined. This, of course, is based on the assumption that the gas-oil ratio and other factors determining the pressure drop in the tubing remain the same; also that the pressure drop in the sand follows the same laws as when the test data were taken. Lack of any data on either of these items makes it impossible to predict what might be expected, but the method gives what would appear to be the minimum pressure at which the well would flow. The nearer the data are taken to the end of the flowing life, the more accurate the results should be. The curve for well No. 8 indicates

THIS is the second and concluding part of this article. Part 1, which appeared in THE OIL WEEKLY November 23, 1936, discussed experimental equipment and methods, formulas for calculating well characteristics, and the use of bottom-hole pressure vs. production curves for determining well capacity.

that the necessary reservoir pressure will depend on the production desired. To these pressures should be added the pressure necessary to force the fluid through the separator into the lease tank. The curve for well No. 7 shows that the reservoir pressure for this case does not vary appreciably regardless of the production.

Figures 9, 10, and 11 show how the gas production varies with the production for the field. From such charts the future gas-oil ratio can be predicted, with only one qualification—this being that production methods continue on the same basis throughout the life of the reservoir. However, if any changes in operating conditions occur, by re-calculating the gas-factor charts, future predictions may be made quite accurately.

Pressure Drop in Flow Strings

Table 2 gives the summary of the data which were collected on flowing wells during this preliminary investigation. These data cover a very wide range of gas-

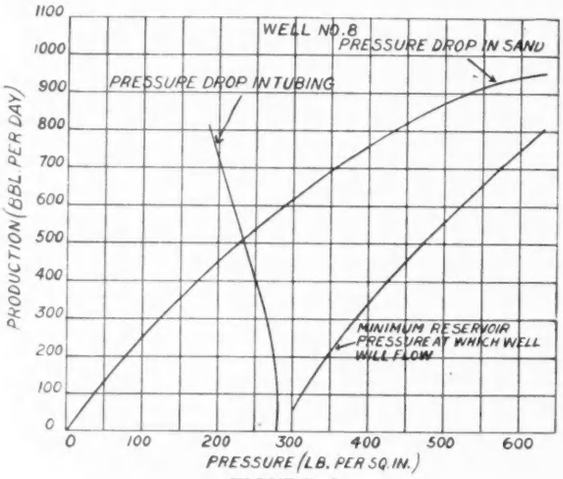


FIGURE 6
Well No. 8

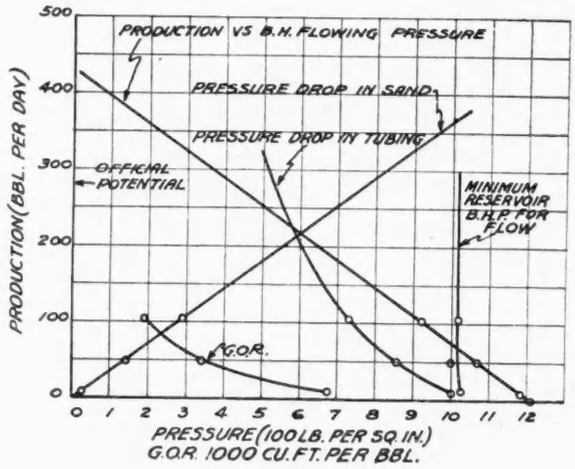


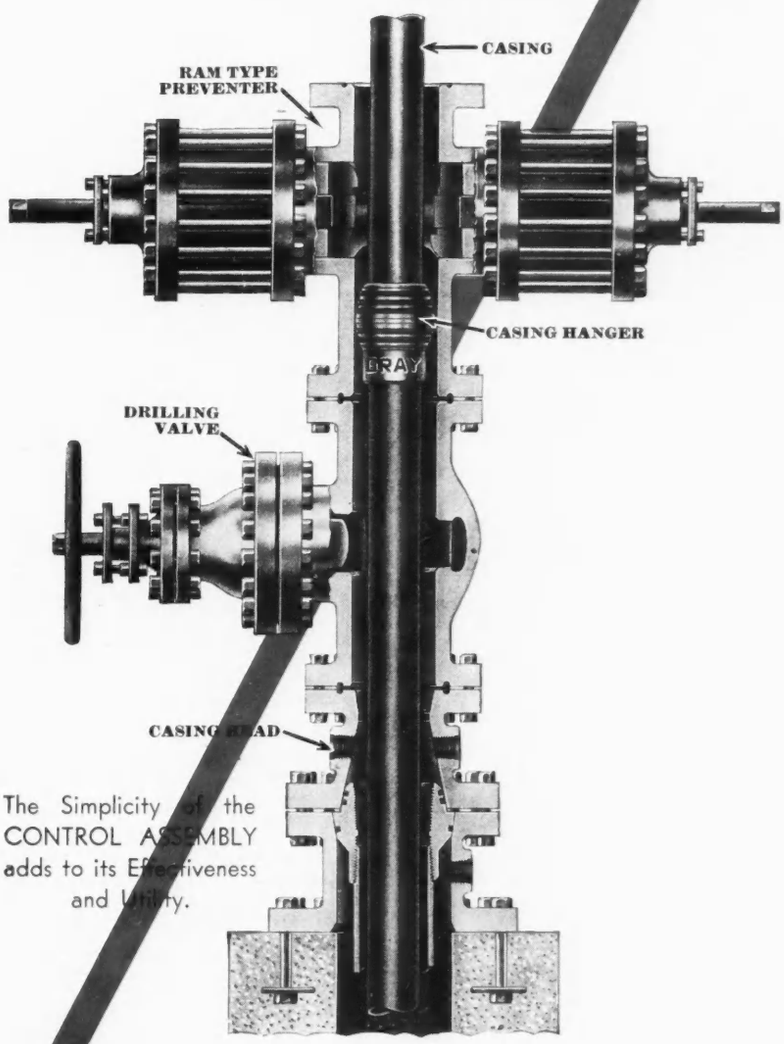
FIGURE 7
Well No. 7

ART *Conceals* ART

RELATED PARTS CONCENTRATE & SIMPLIFY

the

CONTROL HOOK UP



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oil ratios, production, velocity, absolute pressures, and pressure drop; and any general conclusions would, therefore, be expected to apply generally. The only general correlation which was found is shown in Figure 12. This figure shows that there is a very definite increase of pressure drop per foot as the gas-oil ratio decreases. The heavy line in this figure was taken as an arbitrary average line. The dot-dash lines on either side represent values which are approximately ± 10 percent larger or smaller than the values shown by the heavy line. Over two thirds of the test points fall on or within these lines, which represent a variation of 10 percent from this average line. Only two of the points show pressure drops greater than would be indicated by these curves, the other points representing pressure drops which are less.

There is no consistent variation with tubing size, as some of the points below the line as well as two points above the line have 2-inch tubing. There is likewise no consistent variation with velocity. Unfortunately, no information could be obtained on the amount of gas in solution in the different cases. This would, no doubt, make a considerable difference in the various cases, and should be determined in future tests. While the data show very clearly that the gas-oil ratio is the most important factor in determining pressure drop in flow strings, they are not general enough to prove that it is the only item to be considered. These tests show that it will be necessary to obtain more accurate data on gas-oil ratios, as well as data on gas in solution, before any variation with tubing size can be found.

Flowing Pressure vs. Depth Curves

Figures 13, 14, 15, and 16 show curves of flowing pressure plotted against depth.

Figure 13 shows curves taken on well No. 8 at various flow rates. It can be seen that the curves in this case are practically straight lines. The well flowed steadily at the two low rates, and headed at the other rates. The heading is seen to be much less at the bottom, and increases up the hole. Also the heading was smaller at the high rate of flow than at the intermediate rates. This, however, may have been due to the fact that the well had not reached a steady condition for that flow rate. The test was not made, however, until the pressures had steadied down. These curves show that the pressure drop decreased slightly with increase in rates of flow. This is, no doubt, due to the larger gas volume in the tubing, which reduces the static head. In general, the static head appears to be a more important factor—friction being relatively unimportant at low and moderate rates of flow.

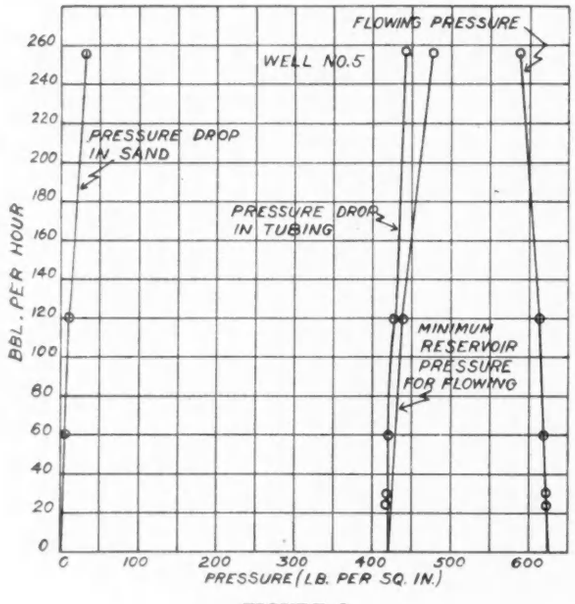

FIGURE 8
Well No. 5

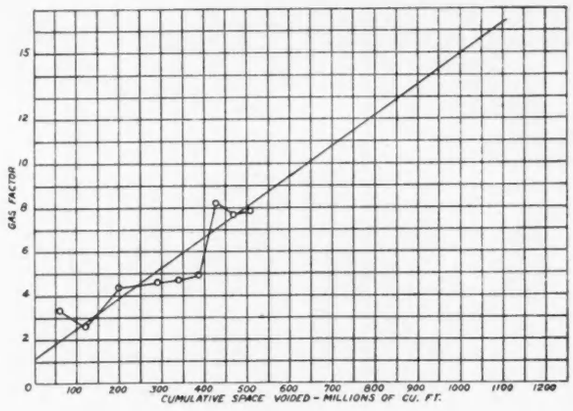

FIGURE 9
Relation Between Gas Factor and Cumulative Production for Offsetting Edge Wells

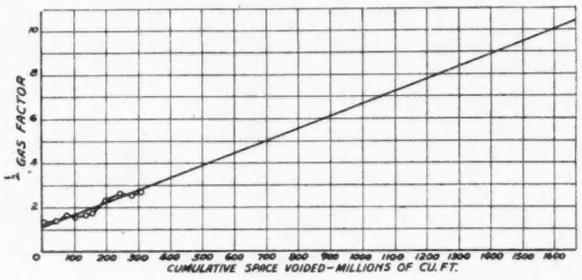

FIGURE 10
Relation Between Gas Factor and Cumulative Production for Inside Wells

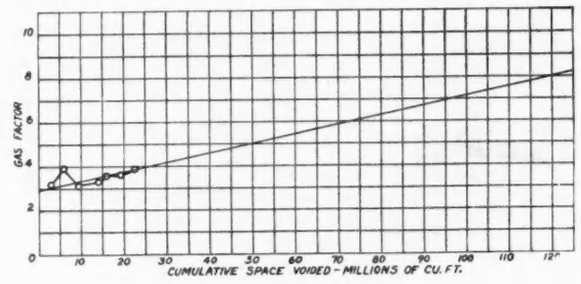

FIGURE 11
Relation Between Gas Factor and Cumulative Production for Edge Wells

Figure 14 shows test results on well No. 9. This well again showed no heading at low rates of flow, but headed considerably at the higher rates of flow. In this case there was as much as 100 pounds variation in tubing pressure, and no variation in the pressure at the bottom of the well. Here, again, the pressure drop is seen to decrease with the flow rate.

Figure 16 shows pressure-drop curve taken on well No. 14. On this test, pressures were recorded every 200 feet, so that curve should show very clearly the variation with depth. In these first three wells the variation with depth is very nearly linear. The results from well No. 17 show a case where the pressure drop varies decidedly with the depth. In this case, the pressure drop per

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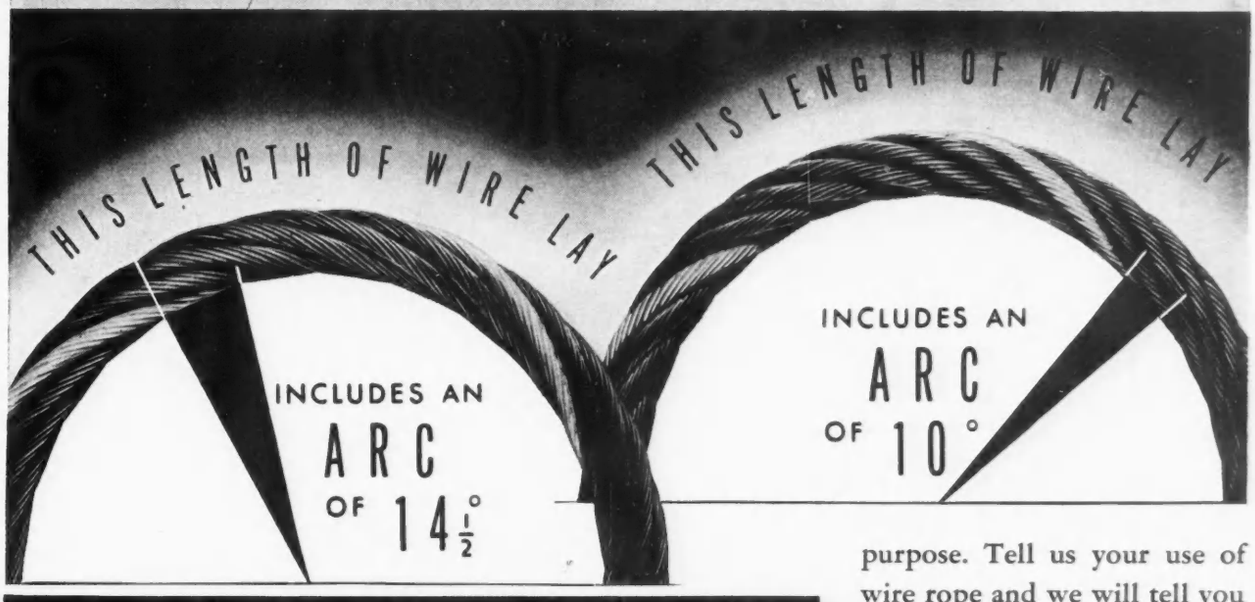

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TABLE 2
Summary of Tests

Well No.	Oil Production per Hour (Barrels)	Gas Production per Hour (Thousands of Cu. Ft.) Atmospheric Pressure)	Ratio	P_1	P_2	P_1-P_2	$\frac{P_1}{P_2}$ Pressure Ratio (Absolute)	Depth (Feet)	Size of Tubing (Inches)	$\frac{P_1-P_2}{\text{Depth}}$	Velocity at Bottom (Feet per Second)	Velocity at Top (Feet per Second)
1	1.79	21	11,730	494	390	104	1.26	2,700	2	0.0385	8.0	10.0
2	1.73	5.2	3,005	345	160	185	2.06	2,700	2.5	0.0686	1.8	3.8
3	1.62	9.9	6,111	589	320	269	1.80	2,680	2	0.1004	3.2	5.8
4	3.16	19.2	6,080	...	145	...	....	2,710	2	.....	....	28.0
5	25	3.78	151	621	201	420	2.95	1,319	3	0.3185	0.48	1.39
	31.5	5.0	159	621	201	420	2.95	1,319	3	0.3185	0.60	1.9
	59.2	8.1	137	616	199	417	2.95	1,319	3	0.3160	1.0	3.1
	122	12.4	101	610	184	426	3.15	1,319	3	0.3230	1.6	5.0
	255	33.2	130	585	143	442	3.81	1,319	3	0.3350	4.5	17.0
6	2.71	9.42	3,470	534	326	208	1.61	3,670	2.5	0.0567	2.2	3.4
	5.28	.....	.....	457	273	184	1.63	3,670	2.5	0.0509	....	....
	7.5	14.90	1,980	404	224	180	1.75	3,670	2.5	0.0491	4.6	8.0
7	0.40	0.271	675	1,185	185	1,000	6.4	3,670	2	0.2725	0.0004	0.25
	2.09	0.708	340	1,065	210	855	4.6	3,670	2	0.2330	0.012	0.58
	4.38	0.833	190	921	190	731	4.6	3,670	2	0.1992	0.16	0.74
8	1.69	4.77	2,820	610	325	286	1.84	3,500	3	0.0814	0.58	1.1
	3.08	6.25	2,030	610	330	280	1.81	3,500	3	0.0800	0.85	1.5
	9.02	17.73	1,970	550	275	275	1.95	3,500	3	0.0786	1.2	2.4
	31.8	.....	.....	230	40	190	4.49	3,500	3	0.0543	5.6	26.
	21	36.8	1,750	395	160	235	2.35	3,500	3	0.0672	7.3	17.0
9	2.97	4.25	1,430	525	290	235	1.77	3,668	2.5	0.0641	1.0	1.8
	3.44	7.2	2,090	425	160	265	2.52	3,668	2.5	0.0723	2.2	5.4
	4.10	.....	.....	420	225	195	1.81	3,668	2.5	0.0532	....	....
10	2.205	1.75	795	758	410	348	1.82	2,660	2	0.1308	0.44	0.79
11	4.52	6.47	1,430	705	510	195	1.37	1,964	2	0.0994	1.7	2.3
8	22.5	31	1,383	569	278	291	2.0	3,500	3	0.0832	4.3	8.5
12	36.4	6.92	190	569	163	406	3.28	1,386	2	0.2930	2.2	7.3
	47.6	8.90	187	554	153	401	3.40	1,386	2	0.2891	2.9	10.0
	76.6	13.20	172	521	108	413	4.37	1,386	2	0.2980	3.1	21.0
13	22.2	9.08	409	585	47	538	9.76	2,800	2	0.1922	2.9	20.7
	15.4	5.99	389	582	45	537	10.02	2,800	2	0.1918	2.0	19.8
	6.3	2.24	356	567	16	551	19.06	2,800	2	0.1967	0.75	14.2
14	38.2	20.50	537	459	128	331	3.32	2,800	2	0.1182	8.3	27.5
	27.8	14.85	534	476	133	343	3.33	2,800	2	0.1225	5.8	19.5

foot is much greater near the bottom of the well, where velocities are lower, than they are at the top of the well, where the velocities are higher. These tests also illustrate the necessity for being sure that conditions in the well are steady at the time the tests are taken. The test at 6.3 barrels per hour shows a lower pressure at the face of the sand than was present in the case of the higher rates of flow. This is, of course, contrary to all laws of fluid flow, and the explanation is that at the higher rates of flow part of the production was obtained from the well bore and the reservoir in the immediate vicinity of the well. Had the tests been taken in the reverse order, the curves would also have been reversed. Such tests are useful in determining pressure drop of tubing, but are entirely misleading as far as the behavior of the reservoir is concerned. Figure 17 reproduces several typical bottom-hole pressure-bomb charts. The chart at the top shows the record taken every 200 feet in the tubing string of well No. 13. The second and third charts from the top are records taken from well No. 8 while heading, and the chart at the bottom shows the record from well No. 5 at flow rates between 25 barrels and 255 barrels per hour. This latter record indicates that the bottom-hole pressure dropped only slightly, and that the build-up was almost instantaneous.

The determination of true closed-in bottom-hole pressures from build-up curves has been discussed by Muskat.[5] One method proposed requires the assumption of the final closed-in pressure. If the assumed value is correct, the plot of $(P_m - P)$ against t on semi-logarithmic paper will be a straight line—except for the case where the flow is not viscous, or is not like a dead fluid. While this method will give satisfactory results, it may require quite a number of trials to determine the correct value. A more direct solution can be obtained by using the equation given for C:

$$C = \frac{a}{\gamma_o g t} \log\left(\frac{P_m - P_o}{P_m - P}\right) \quad \text{.....(1-9)}$$

If we let the subscript *1* stand for the second time at which P is known (P_o = value for $t = 0$) and the subscript *2* stand for the third time at which P is found, we have then:

$$C = \frac{a}{\gamma_o g t_1} \log\left(\frac{P_m - P_o}{P_m - P_1}\right) \quad \text{.....(2-9)}$$

Also:

$$C = \frac{a}{\gamma_o g t_2} \log\left(\frac{P_m - P_o}{P_m - P_2}\right) \quad \text{.....(3-9)}$$

Dividing equation (2-9) by equation (3-9), we find:

$$1 = \frac{t_2}{t_1} \frac{\log\left(\frac{P_m - P_o}{P_m - P_1}\right)}{\log\left(\frac{P_m - P_o}{P_m - P_2}\right)} \quad \text{.....(4-9)}$$

$$t_1 \log\left(\frac{P_m - P_o}{P_m - P_2}\right) = t_2 \log\left(\frac{P_m - P_o}{P_m - P_1}\right) \quad \text{.....(5-9)}$$

or:

$$\left(\frac{P_m - P_o}{P_m - P_2}\right)^{t_1} = \left(\frac{P_m - P_o}{P_m - P_1}\right)^{t_2} \quad \text{.....(6-9)}$$

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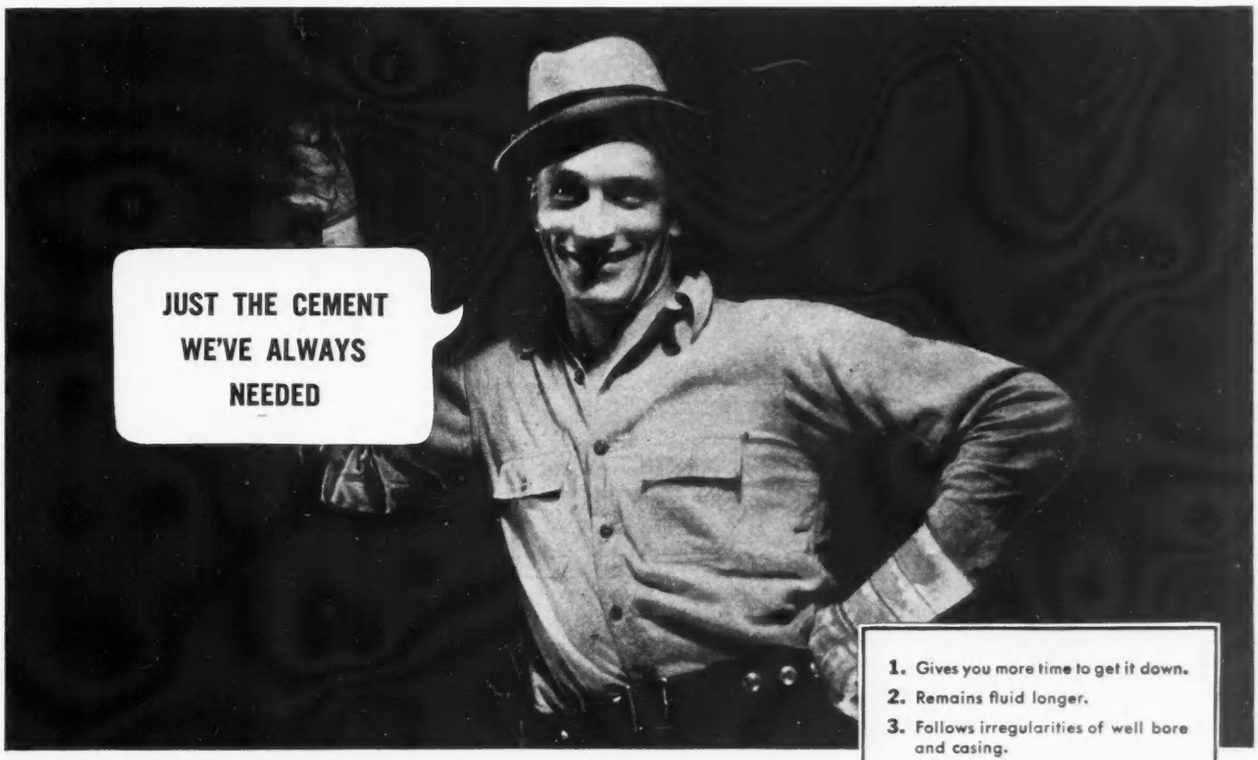

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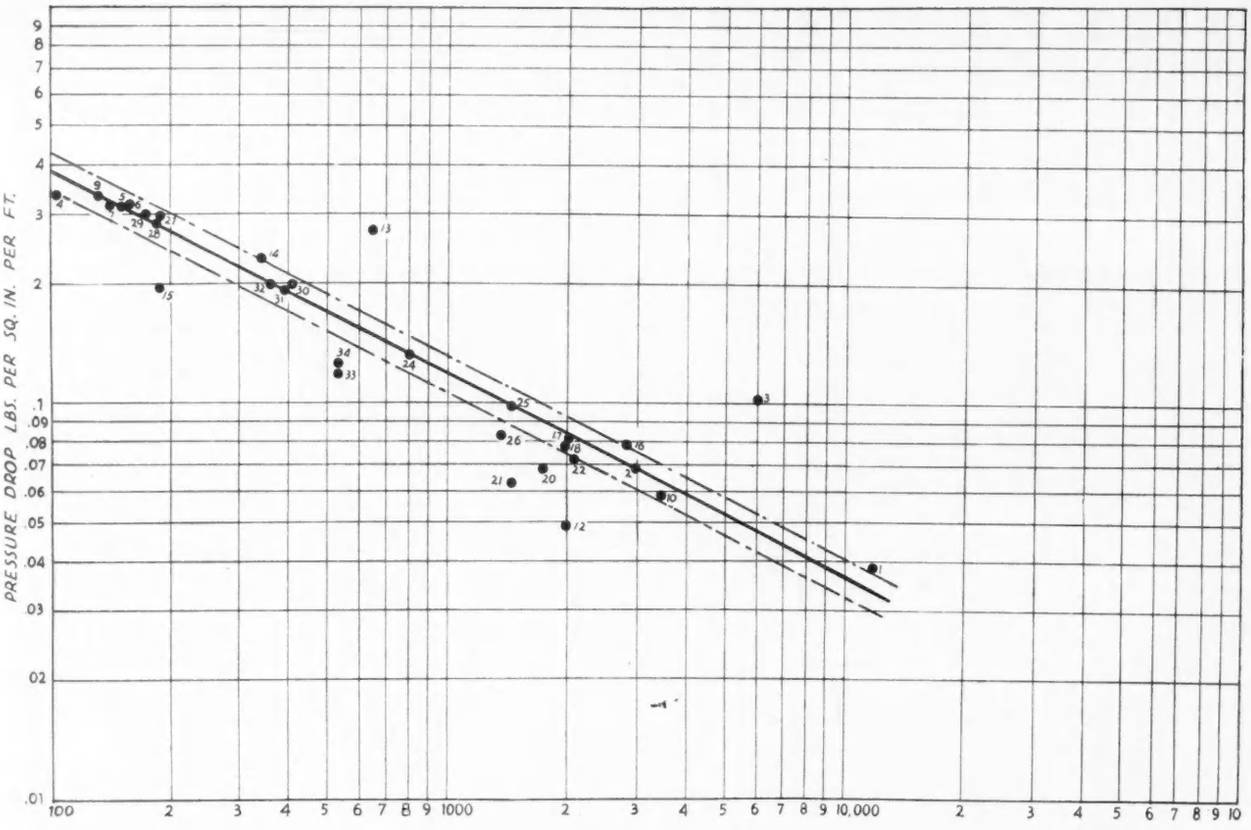


FIGURE 12
Gas-oil Ratio, Cubic Feet Per Barrel

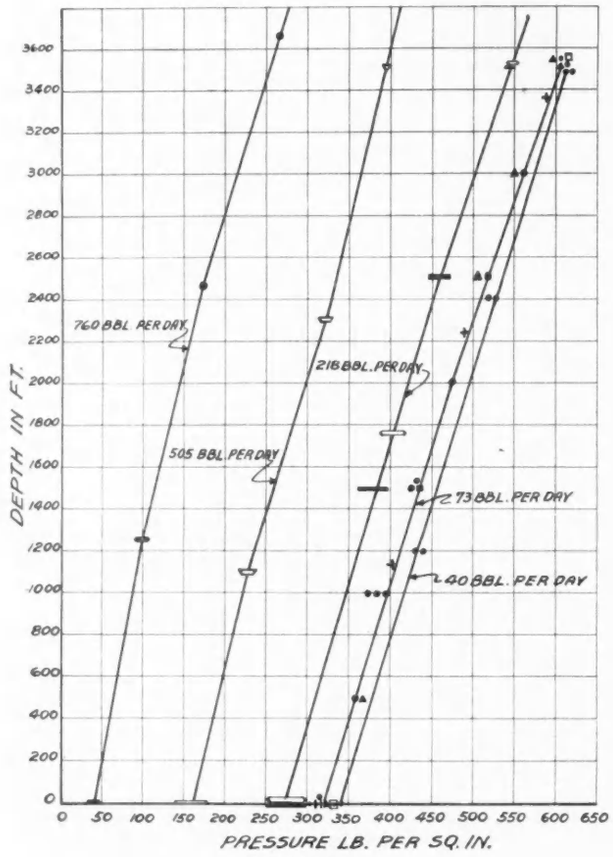


FIGURE 13
Flowing Pressures of Well No. 8

If, in selecting the time at which the pressures are measured, t_2 is made twice t_1 the equation reduces to:

$$\left(\frac{P_m - P_c}{P_m - P_2}\right) = \left(\frac{P_m - P_c}{P_m - P_1}\right)^2 \quad \text{.....(7-9)}$$

Expanding and simplifying, we find for this special case that:

$$P_m = \frac{P_1^2 - P_o P_2}{2P_1 - (P_o + P_2)} \quad \text{.....(8-9)}$$

Applying this formula to the data obtained in one pool, we have, using the following data:

$t_c = 20$ hours after shut in——$P_o = 870$ lb. per sq. in.
$t_1 = 40$ hours after shut in——$P_1 = 905$ lb. per sq. in.
$t_2 = 60$ hours after shut in——$P_2 = 919$ lb. per sq. in.

$$P_m = \frac{819{,}000 - 799{,}500}{1{,}810 - 1{,}789} = \frac{19{,}500}{21} = 928.5$$

This corresponds to the value found by carrying out the tests for 120 hours and by the method mentioned above.

Table 3 gives the results of the application of the formula to build-up curves on well No. 15 and well No. 16. Well No. 15 (Figure 18) shows a very low build-up curve, indicating that the sand had a low permeability. The curve shows that reservoir pressure is not reached until after a period of between 20 and 30 days. The calculated values, using the initial values of bottom-hole pressure, show calculated values considerably below the actual pressure. The calculated values obtained by using time intervals, starting 80 to 160 hours after the well was closed in, show a value which is apparently very

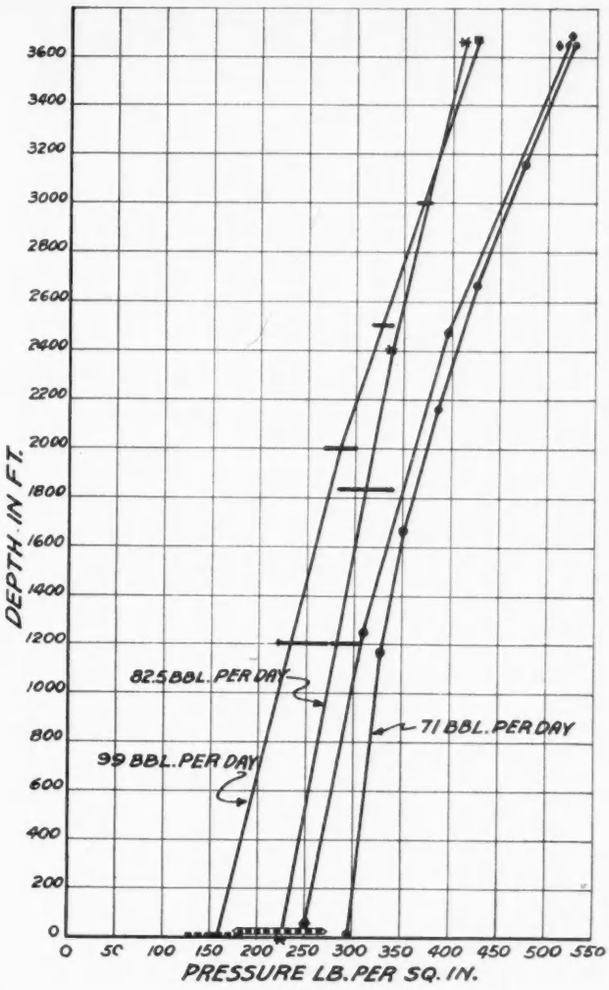


FIGURE 14
Flowing Pressures of Well No. 9

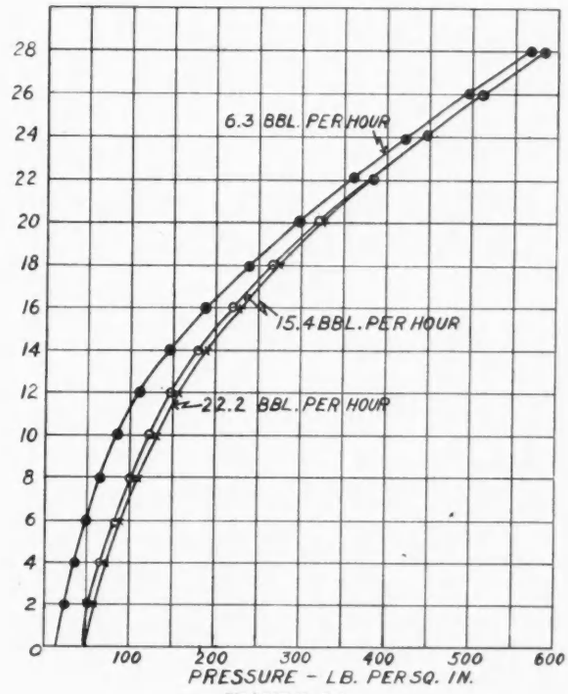


FIGURE 15
Flowing Pressures of Well No. 17

little different from the actual final build-up pressure. Well No. 16 (Figure 19) shows a very rapid build up, indicating a much more permeable formation than well No. 15. Here, again, the values found by using points fairly well up the build-up curve show much better results than the initial points. The result for combination 2-3-4 (Table 3) checks with the build-up curve, and the combination 3-4-5 (Table 3) gives a value slightly high.

These variations may arise from several conditions not always controllable. The curve of well No. 15 shows that many of the points do not fall exactly on the curve drawn. The variations from this curve may be due in part to inaccuracies in making readings, errors in the instruments, small variations in getting the time exactly correct, and many other factors which may arise in the running of the bomb and collection of other data. There is still another factor which may have an influence on the early part of the build-up curve. If the flow into the hole and in the formation near the hole is not according to the assumed viscous law, then any calculations based on these curves may bring about

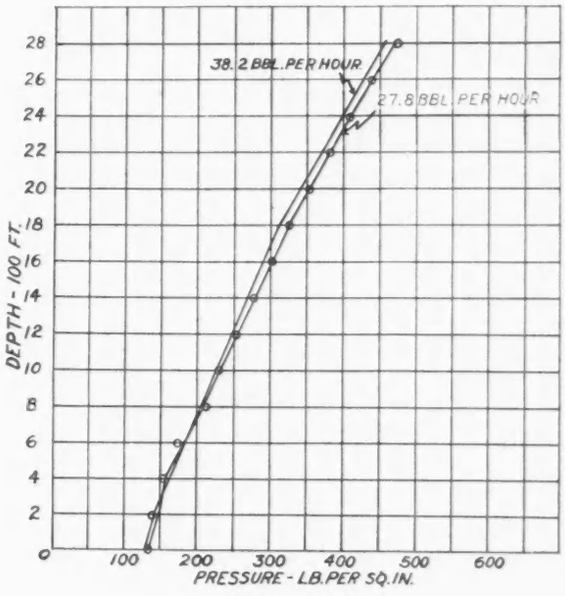


FIGURE 16
Flowing Pressures of Well No. 14

errors. The later in the build-up period the points are taken, the more certain one can be that the flow will correspond to the conditions assumed in the deviation of the formulas.

The quickest and least expensive method of determining the reservoir pressure is to use a recording bomb for obtaining the build-up curve. The use of a recording bomb eliminates any error arising from incorrect recording of time, since equal time spaces can be marked off on the record and no numerical value of the time is required. Because of the accuracy with which the pressures are recorded, the build-up pressure need only be taken over a short period. Even in the case of wells having a very slow build up, two or three days should suffice for obtaining a record from which the reservoir pressure could be calculated. The records will be taken continuously, and will not be subject to variations, because of changes in the gauge accuracy from time to time.

The results from the above examples, the simplicity of the formula, and the ease and short time required

for determining the maximum reservoir pressure by this method justify a detailed study and trial of the method in different fields and wells.

In using this method, it is very important that the well be flowing at a steady rate before being closed in. The results will depend on the flow having been at a steady rate for some time before the well was closed in. For the best results, the flow rate should not be too high; otherwise the flow near the well bore will not be viscous, and the build up will not follow the law on which the formula is based. The more permeable the formation, the higher the rate of flow can be, and the shorter the time during which it is necessary to have the well flow to be certain that steady state conditions are present in the reservoir. Also, a shorter build-up curve will be needed for these wells.

Theoretical Work Available From Gas in Solution

The following formulas have been derived to give the amount of the available energy resulting from the expansion of gas which is in solution in the oil. The only assumptions which will be made are that the volume of free gas (measured at atmospheric pressure) will be proportional to the difference between the pressure and the pressure at which all the gas would be in solution, and that the expansion would be isothermal.

The free volume at atmospheric pressure will be given by the expression $\left(\frac{P_m - P}{P_m - P_a}\right) V_{gor}$, and the actual volume V at pressure P will be given by:

$$V = \frac{P_a(P_m - P)}{(P_m - P_a)} \frac{V_{gor}}{P} \quad \ldots\ldots(1)$$

Where:

V = actual volume at pressure P.
P_m = pressure at which all gas is in solution.
P_a = atmospheric pressure.
V_{gor} = free gas measured at atmospheric pressure, or gas-oil ratio.

The work of expansion which will be done by the gas which comes out of solution will be given by:

$$\text{Work} = W = \int_0^V P\,dV \quad \ldots\ldots(2)$$

Since $V = \frac{P_a(P_m - P)}{(P_m - P_a)} \frac{V_{gor}}{P}$:

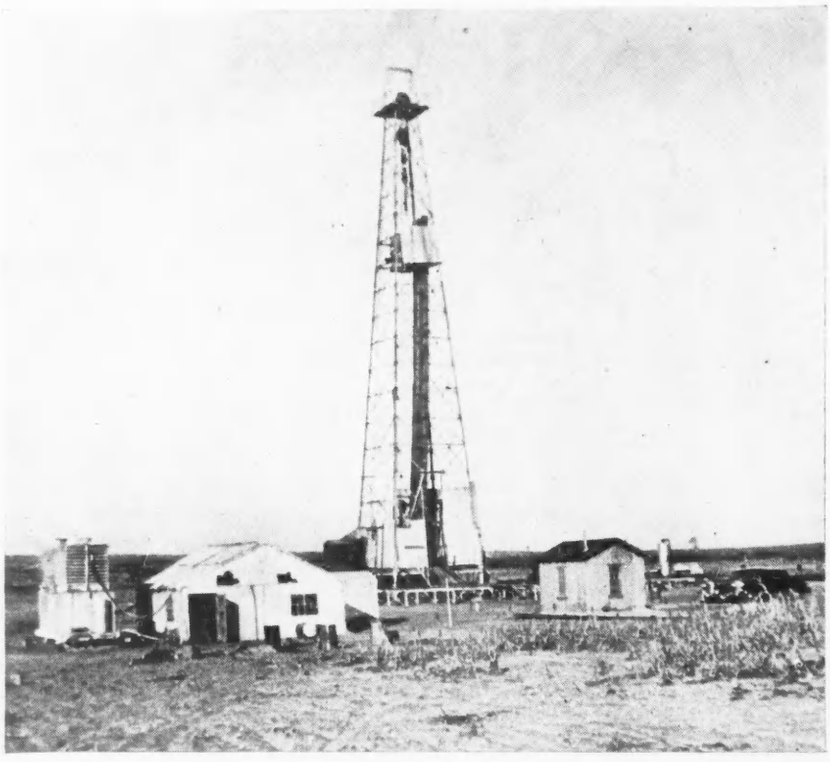
$$dV = \frac{P_m V_{gor} P_a}{(P_m - P_a)} (-1) \frac{dP}{P^2} \quad \ldots\ldots(3)$$

$$W = \int_{P_m}^{P} P \frac{P_a P_m V_{gor}}{(P_m - P_a)} (-1) \frac{dP}{P^2} \quad \ldots\ldots(4)$$

$$= \frac{P_a P_m V_{gor}}{(P_m - P_a)} \left[\log_e P\right]_P^{P_m} = \frac{P_a P_m V_{gor}}{(P_m - P_a)} \log_e \frac{P_m}{P}$$

$$= \frac{P_a V_{gor}}{\left(1 - \frac{P_a}{P_m}\right)} \log_e \frac{P_m}{P} \quad \ldots\ldots(5)$$

All this work of expansion is not available for lifting



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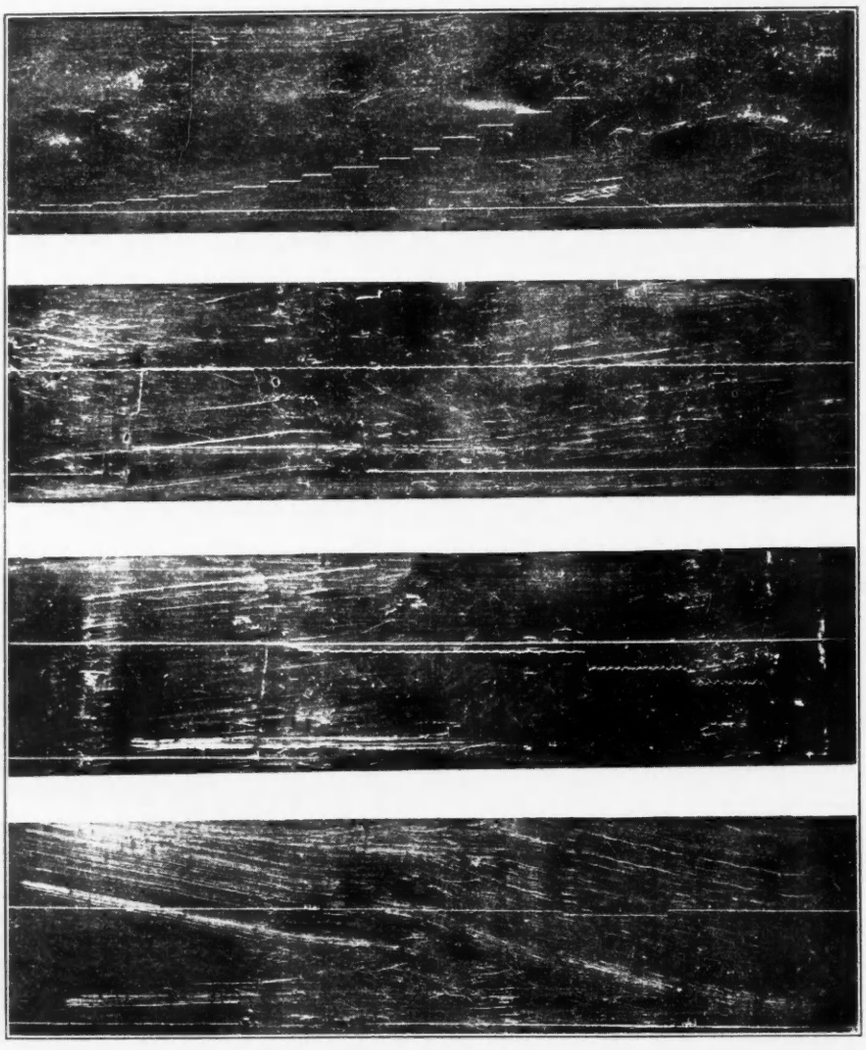

FIGURE 17
Typical Bottom-Hole Pressure-Bomb Charts During Flow Tests

TABLE 3
Calculation of Closed-in Pressure from Build-up Curve

No.	Hours Closed in	Gage Pressure	Absolute Pressure at Sand Face	Calculated Closed-in Pressure at Sand Face	Corrected Gage Pressure at Sea Level
WELL No. 15					
1	0	245	290	.....	.....
2	80	915	916	.....	.....
3	160	985	1,030	.....	.....
4	240	1,020	1,065	.....	.....
5	320	1,040	1,085	.....	.....
Combination					
1-2-3	....	....	.....	1,038	993
1-3-5	....	....	.....	1,090	1,045
2-3-4	....	....	.....	1,100	1,055
3-4-5	....	....	.....	1,107	1,062
WELL No. 16					
1	0	250	295	.....	.....
2	20	920	965	.....	.....
3	40	950	995	.....	.....
4	60	970	1,015	.....	.....
5	80	985	1,030	.....	.....
Combination					
1-2-3	....	....	.....	996	951
1-3-5	....	....	.....	1,030	985
2-3-4	....	....	.....	1,050	1,005
3-4-5	....	....	.....	1,060	1,015

the oil, as some flow work must be expended in forcing the fluid from the system. This work will be equal to $P_a V_a$, where P_o and V_o are the pressure and volume at the tubing. From equation (1), we have:

$$V_o = P_a V_{gor} \frac{(P_m - P_o)}{(P_m - P_a)P_o} \quad \ldots\ldots\ldots\ldots (6)$$

The value of $P_o V_o$ will then be equal to:

$$P_o V_o = P_a V_{gor} \frac{(P_m - P_o)}{(P_m - P_a)}$$

and the net work available upon expansion to pressure P_o will be given by:

$$\text{Net work} = \frac{P_a V_{gor}}{\frac{(1-P_a)}{P_m}} \log_e \frac{P_m}{P_o} - P_a V_{gor} \frac{(P_m - P_o)}{(P_m - P_a)}$$

$$= P_a V_{gor} \left[\left(\frac{P_m}{P_m - P_a} \right) \log_e \frac{P_m}{P_o} - \left(\frac{P_m - P_o}{P_m - P_a} \right) \right] \quad (7)$$

For the case where all the gas is free gas at pressure

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P_m, i.e., gas not in solution, the net work available for isothermal expansion will be given by:

$$\text{Net work} = V_{gor} \times 14.7 \times 144 \log_e \frac{P_m}{P_o} \quad \ldots\ldots (8)$$

This equation assumes isothermal expansion which was implied, although not explicitly stated, in equation (7).

Taking the conditions found in one case, we have $P_m = 465$ lb. per sq. in.; $P_o = P_a = 14.7$ lb. per sq. in.; $V_{gor} = 360$ cu. ft. per bbl.

$$\text{Net work} = 360 \times 14.7 \times 144 \left[\frac{465}{465 - 14.7} \log_e \frac{465}{14.7} - 1 \right]$$

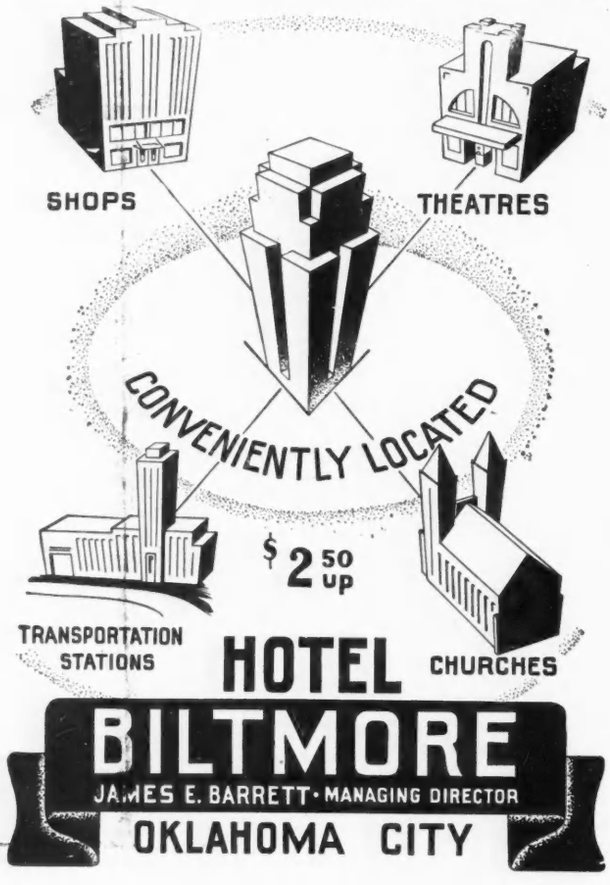
$$= 1{,}950{,}000 \text{ ft-lb. per barrel of oil.}$$

The average work to lift a barrel of oil was $1550 \times 5.6 \times 50 = 434{,}000$ ft.-lb. per barrel of oil. If about one third of this energy is supplied by the pump, the efficiency of the use of the gas will be $\frac{434{,}000 \times 2/3}{1{,}950{,}000} =$ 14.8 percent.

For the general case where part of the gas is in solution and part is free gas, the net energy available for doing work is given by the equation:

$$\text{Net work} = V_f \times P_a \log_e \frac{P_m}{P_o} + P_a V_s \left[\frac{P_m}{(P_m - P_a)} \log_e \frac{P_m}{P_o} - \frac{(P_m - P_a)}{(P_m - P_a)} \right] \ldots (9)$$

Where: V_f = volume of free gas (gas not in solution at pressure P_m) measured at atmospheric pressure.
V_s = volume of gas in solution at pressure P_m, measured at pressure P_a.
The other symbols have the same meaning as before.



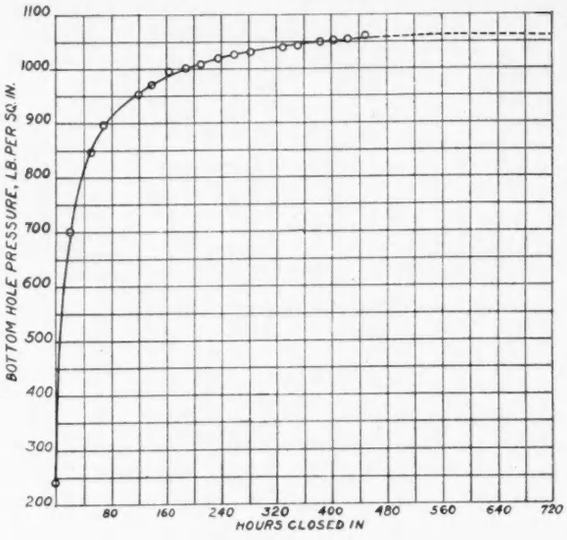


FIGURE 18
Closed-in Bottom-Hole Pressure of Well No. 15

Acknowledgement

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Bibliography

[5] M. Muskat, "Determining Production Capacity and Pressure," *Oil Weekly*, **38 [5]** 30 (1936).

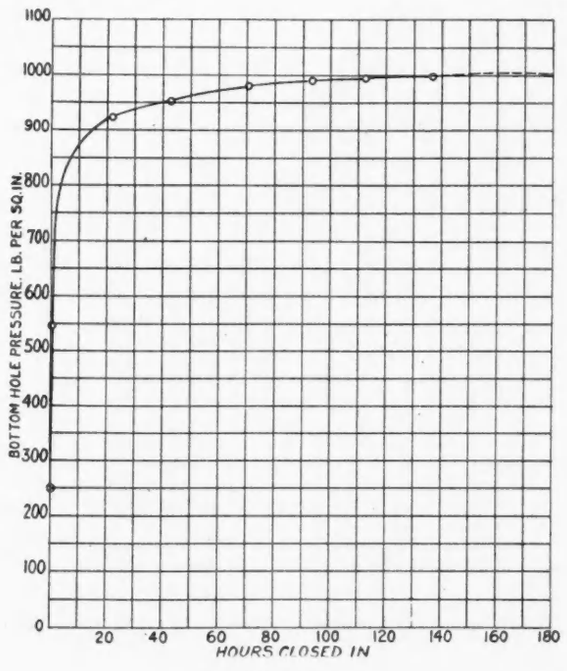
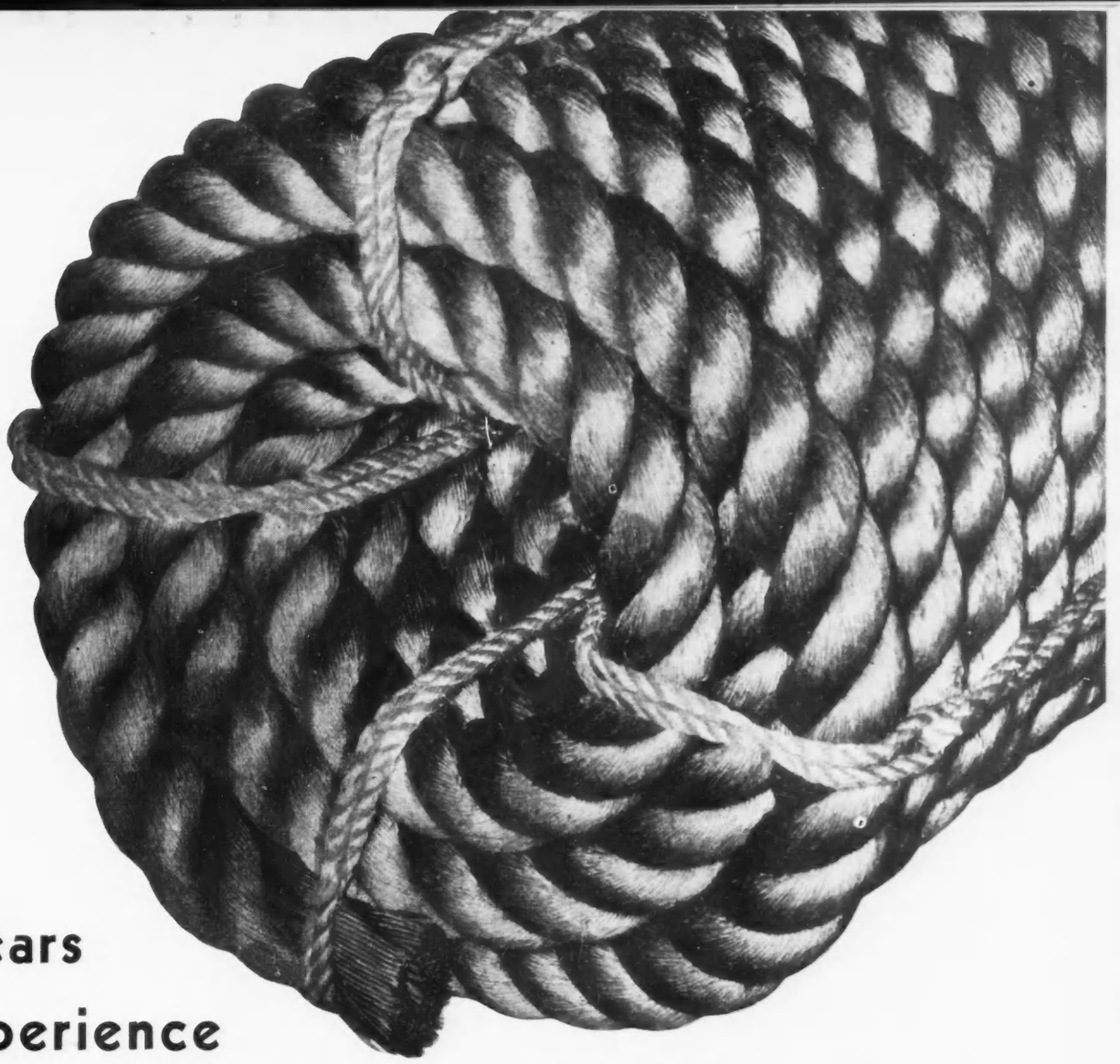


FIGURE 19
Closed-in Bottom-Hole Pressure of Well No. 16



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BOTH FUEL OIL AND KEROSENE PRICES ADVANCE DURING WEEK

MARKETS remain firm, as evidenced by the fact some further advances in tank car prices occurred during the past week. Colder weather has resulted in additional increases in fuel oil and kerosene prices, and in some instances gasoline prices have improved further. The crude market also appears to be in good condition, and there is persistent talk of the possibility of crude price increases soon.

Undoubtedly, a principal reason for the present strong markets is the high level at which consumption of all petroleum products is running. Fuel oils and kerosene naturally are in strong demand, since oil burner installations have steadily increased above all previous records. But other products, too, are in unusually great demand. Running well ahead of last year, gasoline consumption is setting this year another new high record.

Although there have been fears that the large requirements of fuel oil would necessitate overproduction of gasoline during the fall and winter, there has not yet developed any weakening of the gasoline market. Refiners are to some extent avoiding excessive building up of gasoline inventories by regulating their plant operations to effect lower recovery of gasoline and higher recovery of fuel oils. The higher demand for gasoline also is absorbing some of the gasoline output incidental to turning out requirements for fuel oils.

Kerosene and Fuels Up

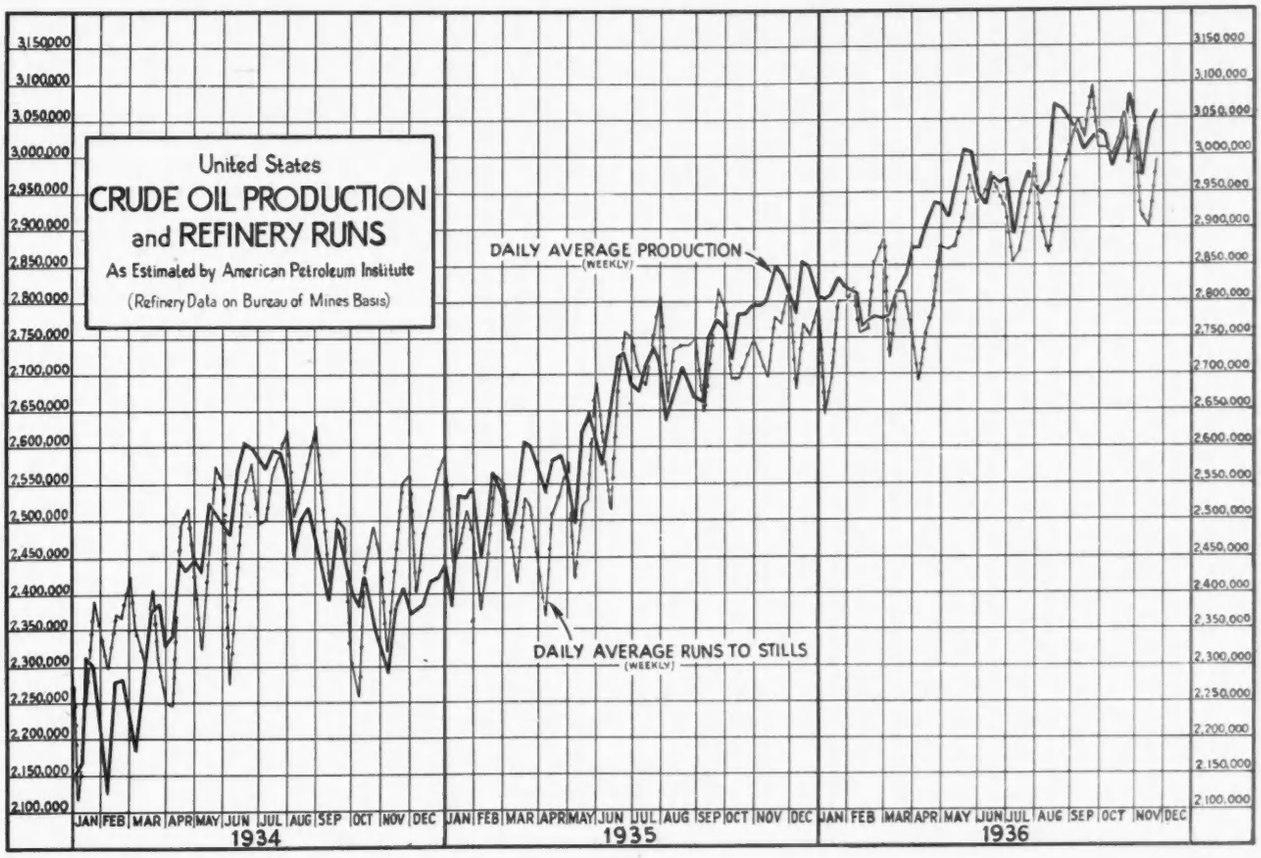
Kerosene prices improved during the past week in both the Oklahoma and the Chicago markets. The 41-43 water-white grade was up to a range of 3½ to 3⅝ cents a gallon and the 42-44 water-white grade to 3⅝ to 3¾ cents, in both districts.

Fuel oil prices were virtually unchanged in Oklahoma, but Chicago prices were up an eighth cent on the No. 2 oils. The No. 1 oils continued in a range of 3¼ to 3½ cents in both the Oklahoma and Chicago markets. The No. 2 oils continued to range from 3⅛ to 3⅜ cents f.o.b. Oklahoma refineries, and were up to that range also in the Chicago market.

Gasoline Prices Same

Gasoline prices remained generally the same as in the previous week. The U. S. motor gasoline prices f.o.b. Oklahoma refineries appeared to be about as follows: 62 octane and below, 4¾ cents a gallon; 63 to 67 octane, 5⅛ to 5⅜ cents; and 68 to 70 octane, 5¾ cents. Corresponding prices in the Chicago market were: 4⅝ to 4⅞ cents, 5 to 5¼ cents, and 5½ to 5⅞ cents.

In East Texas the fully tendered third-grade gasoline, below 62 octane, remained at 4⅝ cents a gallon. Hot oil traffic continues almost negligible in East Texas, and that fact apparently is an important steadying influence on the Mid-Continent gasoline market.



BIG CRUDE PURCHASE

Rodessa crude deal calls for 7500 barrels daily

UNITED Pipe Line Company, owner of the only pipe line making direct deliveries of Rodessa crude to the East Texas field, has contracted to sell Atlantic Petroleum Purchasing Corporation 7500 barrels of crude daily for two years beginning January 1, 1937. The former will extend its eight-inch carriers from Falvey pump station and tank farm, near the East Texas field, to Atlantic Pipe Line Company's Horton main line station and tank farm, involving the construction of about six miles of eight-inch welded line. Atlantic Pipe Line Company will alternate shipments of Rodessa crude with East Texas oil movement through its 10-inch carriers to Atreco.

A posted tariff of 15 cents per barrel, including five cents field gathering charge, applies on Rodessa crude delivered to the East Texas field by United Pipe Line Company. The company also makes deliveries to the East Texas Refining Company's refinery near Longview, in accordance with contract terms assumed last June in acquiring the eight-inch trunk line from the East Texas Pipe Line Company.

East Texas Tank Car Shipments

Week Ending November 22, 1936

PRODUCTS—	No. Cars	Estimated Gallons
Gasoline	694	5,640,879
Fuel oil	260	2,381,113
Casinghead gasoline	107	914,361
Distillate	92	732,884
Gas oil	23	186,797
Kerosene	13	115,503
Topped crude	11	89,293
Residuum	7	56,762
Naphtha	7	49,728
Total	1,214	10,166,320
Total previous week	1,314	11,124,465
Interstate	484	.....
Intrastate	369	.....
Coastwise	361	.....
Total	1,214	.....

Rodessa Hearing

[*Continued from page 10*]

that the present regulations be maintained in force, a second that the same limitations be held with a limit of 12,500 cubic feet on oil wells and 25,000 on distillate wells, and a third the same as Krauss' with the limit fixed at 12,500 cubic feet on all wells.

Hall said the average escape from the wells now is 9704 cubic feet of gas for each barrel of oil produced, but asserted that to reduce the total amount of gas wastage from each of the distillate wells would further reduce the amount of oil and would raise the percentage of waste from the wells affected.

Yandell Boatner, representing United Gas Public Service Company and Magnolia Petroleum Company, suggested that the well allowables be distributed on the basis of 75 percent to acreage and 25 percent to pressure with a maximum of 2000 cubic feet of escaping gas for each barrel of oil. Boatner said this is the figure used on the Texas side of the field.

Grady Lewis, representing the recently-organized Louisiana Oil & Gas Association, proposed the maintenance of the present regulations and requiring the owners of 58 wells producing in more than one sand to limit their production to one sand. These 58 wells, several witnesses testified, are being operated in violation of state laws at present.

Raise Texas Output

[*Continued from page 9*]

up 1985 barrels to 444,034 barrels; Rodessa was increased 2475 barrels to 21,882 barrels; West Central Texas, up 1022 barrels to 58,051 barrels; West Texas, up 7358 barrels to 147,414 barrels; North Texas was raised 1264 barrels to 62,336 barrels; Panhandle was raised 1486 barrels to 61,335 barrels.

The increases above are in proportion to the allowables in effect November 18.

East Texas field allowable was unchanged. Operators there will continue to produce 2.32 percent of the hourly potential of their wells.

Changes by fields with increases of more than 500 barrels over November 1 allowables were as follows: McCamey, up 1036 barrels to 10,022 barrels; Young County, up 659 barrels to 5300 barrels; North Cowden, up 1883 barrels to 7086 barrels; Estes, up 676 barrels to 2246 barrels; Goldsmith, up 600 barrels to 1461 barrels; Gulf McElroy, up 2500 barrels to 4650 barrels; Iatan-East Howard, up 639 barrels to 7055 barrels; Keyes, up 875 barrels to 2800 barrels; Keystone, up 729 barrels to 1555 barrels; Masterson, up 587 barrels to 917 barrels; Sayre, up 526 barrels to 5968 barrels; North Ward, up 3717 barrels to 8829 barrels; South Ward, up 695 barrels to 13,288 barrels; Yates, up 3206 barrels to 27,820 barrels; Talco, up 4265 barrels to 10,189 barrels, an increase of 10 barrels per well to 85 barrels; Van, up 5000 barrels to 31,296 barrels; Placedo, up 1337 barrels to 6208 barrels; Tomoconnor, up 935 barrels to 5625 barrels; Corpus Christi, up 1162 barrels to 9162 barrels; North Government Wells, reduced 889 barrels to 9695 barrels; Loma Novia, up 546 barrels to 15,068 barrels; Lopez, up 865 barrels to 6000 barrels; Plymouth, up 2502 barrels to 11,422 barrels; Samfordyce, up 1387 barrels to 5318 barrels; Seven Sisters, up 648 barrels to 7752 barrels; New Saxet (shallow), up 555 barrels to 4475 barrels; New Saxet (Frio), up 3358 barrels to 10,600 barrels; Anahuac, up 1564 barrels to 8652 barrels; Barbers Hill, up 3352 barrels to 13,446 barrels; Conroe, up 3278 barrels to 37,667 barrels; Hastings, up 1939 barrels to 7725 barrels; Manvel (Miocene), up 1508 barrels to 4819 barrels; New Mykawa, up 765 barrels to 2295 barrels; Pierce Junction, up 678 barrels to 4362 barrels; South Houston, up 2128 barrels to 5739 barrels; Sugarland, up 1400 barrels to 4000 barrels; Thompson, up 538 barrels to 8070 barrels.

Summary of Wells Completed in the United States Week Ending November 28, 1936

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1936	Total Completions this date, 1935
Alabama	....	....	....	....	.....	2	4
Arkansas	2	....	....	2	.....	83	117
California	25	22	....	3	7,945	1,027	784
Colorado	2	1	....	1	1,400	18	11
Florida	....	....	....	....	.....	2	....
Illinois	....	....	....	....	.....	4	9
Indiana	5	....	4	1	.....	165	173
Kansas	45	34	....	11	42,090	1,546	1,279
Kentucky	8	3	....	5	105	248	157
Louisiana	16	12	....	4	7,483	930	664
Michigan	13	7	1	5	635	709	536
Mississippi	....	....	....	....	.....	8	18
Montana	2	2	....	....	41	178	162
Nebraska	....	....	....	....	.....	1	....
New Mexico	9	9	....	....	11,918	521	267
New York	....	....	....	....	.....	....	....
Ohio	59	13	36	10	254	1,781	1,318
Oklahoma	50	32	3	15	27,034	2,634	2,208
Pennsylvania	....	....	....	....	.....	....	118
Texas	243	189	12	42	256,975	11,514	10,830
Utah	....	....	....	....	.....	....	1
West Virginia	21	10	10	1	57	569	450
Wyoming	1	....	1	....	.....	86	66
Total this week	501	334	67	100	355,937	22,026	19,188
Total last week	481	329	31	121	442,825	....	....
Total this year	22,026	14,812	2,066	5,148	20,547,776	....	....

Comparison of Permits Granted for New Wells

STATE	Week Ending Nov. 28	Total this Mo.	Total this Year	Total this Date Last Year	1935 Year Total
Arkansas	4	10	93	57	70
California	18	75	964	900	925
Louisiana	14	64	1,045	791	846
Kansas	38	150	1,699	1,090	1,204
Michigan	9	76	700	699	749
Oklahoma	54	216	2,357	2,119	2,311
Texas	538	1,248	14,602	10,150	10,800
Total	675	1,839	21,460	15,806	16,964

PRODUCTION DOWN
U. S. output past week 3,012,750 barrels

UNITED STATES crude oil production decreased considerably during the past week, ended November 28, averaging 3,012,750 barrels daily, according to the regular estimates compiled by THE OIL WEEKLY. That was 37,825 barrels a day less than in the previous week. It was 142,450 barrels a day more than the recommendation of the Bureau of Mines.

Last week's decline in production occurred despite increases in Texas and Louisiana, those gains having been more than offset by substantial decreases in Oklahoma and California and smaller decreases in Kansas and New Mexico.

Oklahoma-Kansas Down

Oklahoma production last week averaged 568,125 barrels daily, or 25,300 barrels a day less than in the previous week, and 9725 barrels a day more than the Bureau of Mines recommendation.

Kansas averaged 165,400 barrels daily, which was 1900 barrels a day less than in the previous week and 10,900 barrels a day more than the federal recommendation.

California produced at the rate of 568,000 barrels daily, or 23,000 barrels a day less than the week before, and 18,400 barrels a day more than the allocation to the state.

New Mexico averaged 83,500 barrels daily, 100 barrels a day less than in the preceding week and 7900 barrels a day more than the federal allocation.

Texas production last week averaged 1,154,000 barrels daily. That was 12,200 barrels a day more than in the previous week, and reflected higher allowables ordered by the railroad commission at the middle of the month. The state was 44,700 barrels a day above its federal allocation.

Louisiana last week produced on the average 234,275 barrels per day, or 2975 barrels a day more than the week before and 35,675 barrels a day more than the Bureau of Mines recommendation.

STOCKS UP

Los Angeles.—Total of all stocks of crude oil, fuel oil and other products in California were increased 79,126 barrels during October, according to American Petroleum Institute figures. But a check of the figures shows that storage of heavy crude oil including fuel oil was reduced 218,775 barrels, while stocks of light refinable crudes were decreased 241,745 barrels. Storage of unblended natural gasoline was off 96,890 barrels. Stocks of gasoline were up 456,277 barrels. Certain stocks of other products were up, bringing about a net increase.

At the close of October, total of 255 wells were actively drilling in California, a high figure for the year thus far. Of this total, 49 were wildcats. During last month, total of 69 producing wells (one being a gas well) were completed and 19 dry holes were abandoned. During the first 10 months of 1936, total of 837 wells have been completed in the state, indicating that close to 1020 wells will be completed in California in 1936.

United States Crude Oil Production
Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Nov.)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING	
		November 28	November 21
TEXAS—			
Texas Panhandle	.....	63,300	59,200
North Texas	.....	64,600	64,700
West Central Texas	.....	33,800	33,900
West Texas	.....	152,800	147,600
East Central Texas	.....	74,800	69,800
*East Texas Field	.....	443,400	442,100
South Texas	.....	169,100	166,100
Texas Gulf Coast	.....	152,200	158,400
*Total Texas	1,109,300	1,154,000	1,141,800
OKLAHOMA—			
Oklahoma City	.....	143,475	162,275
Seminole Area	.....	135,500	141,800
Tatums	.....	3,600	3,300
Lucien	.....	12,500	12,750
Fitts	.....	63,875	65,325
Edmond	.....	11,375	14,900
Others	.....	197,800	193,075
Total Oklahoma	558,400	568,125	593,425
KANSAS—			
Ritz-Canton	.....	5,900	5,875
Voshell	.....	2,825	2,000
Nikkel-Hollow	.....	3,700	3,725
Sedgwick	.....	4,750	4,775
Burrton-Haury	.....	13,500	13,225
Lorraine	.....	6,400	6,300
Oxford	.....	3,025	2,975
Others	.....	125,300	127,625
Total Kansas	154,500	165,400	167,300
LOUISIANA—			
North Louisiana	.....	77,475	76,900
Louisiana Gulf Coast	.....	156,800	154,400
Total Louisiana	198,600	234,275	231,300
ARKANSAS	28,100	27,550	27,650
CALIFORNIA—			
Long Beach	.....	64,000	64,500
Santa Fe Springs	.....	44,500	45,500
Huntington Beach	.....	34,000	36,500
Dominguez	.....	25,000	25,000
Inglewood	.....	13,500	12,500
Ventura Avenue	.....	35,000	34,000
Seal Beach	.....	8,500	9,000
Midway-Sunset	.....	56,000	66,000
Elwood	.....	11,500	12,000
Kettleman Hills	.....	76,500	77,500
Mountain View	.....	21,000	21,500
Playa del Rey	.....	11,500	11,500
Others	.....	176,000	175,500
Total California	549,600	568,000	591,000
MOUNTAIN STATES—			
Wyoming	40,100	46,600	49,300
Montana	14,300	17,900	17,800
Colorado	4,400	3,700	4,700
Total Rocky Mountain States	58,800	68,200	71,800
NEW MEXICO	75,600	83,500	83,600
EASTERN STATES	108,400	113,900	113,500
MICHIGAN	29,000	29,800	29,200
*Total United States	2,870,300	3,012,750	3,050,575
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at	.....	8,000	10,000
Grand Total, including surreptitious production	.....	3,020,750	3,060,575

Crude Runs To Stills; Stocks of Finished and Unfinished Gasoline and Gas and Fuel Oil, and Cracked Gasoline Production, Week Ended November 21, 1936

(Figures in thousands of barrels of 42 gallons each as reported to American Petroleum Institute)

DISTRICT	Daily Refining Capacity			Crude Runs to Stills		Stocks of Finished and Unfinished Gasoline				Stocks of Gas and Fuel Oil			Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
		Reporting				Finished		Unfinished in Naphtha Distillates	Total Finished and Unfinished					Reporting		
	Potential Rate	Total	%	Daily Average	% Operated	At Refineries	Terms. Trans. Pipe Lines			Gas, Oil & Distillates	Residual Fuel Oil	Total	Potential Rate	Total	%	Daily Average
East Coast	612	612	100.0	530	86.6	4,354	9,358	793	14,505	6,509	5,769	12,278	534	534	100.0	120
Appalachian	154	146	94.8	104	71.2	881	962	257	2,100	349	311	660	79	78	98.7	27
Ind., Ill., Ky.	475	457	96.2	400	87.5	4,282	3,349	704	8,335	3,208	3,089	6,297	349	348	99.7	129
Okla., Kans., Mo.	453	384	84.8	270	70.3	3,061	2,042	434	5,537	1,169	2,281	3,450	256	228	89.1	66
Inland Texas	330	160	48.5	109	68.1	1,322	68	193	1,583	414	1,318	1,732	148	105	70.9	30
Texas Gulf	732	710	97.0	657	92.5	4,768	275	1,978	7,021	4,655	3,913	8,568	399	393	78.5	160
Louisiana Gulf	169	163	96.4	129	79.1	861	300	162	1,323	1,227	1,124	2,351	77	74	96.1	27
North La.,—Ark.	80	72	90.0	57	79.2	181	67	37	285	165	240	405	46	44	95.7	7
Rocky Mountain	97	60	61.9	44	73.3	773	.....	93	866	211	564	775	46	39	84.8	14
California	852	789	92.6	463	58.7	8,363	1,946	1,213	11,522	.....	.....	72,971	280	280	100.0	80
Reported	.....	3,553	89.9	2,763	77.8	28,846	18,367	5,864	53,077	.....	.....	109,487	.....	2,123	95.9	660
Estimated Unreported	.....	401	.....	232	.....	2,159	1,026	408	3,593	.....	.....	2,275	.....	91	.....	45
*Estimated Total U. S. November 21, 1936.	3,954	3,954	.....	2,995	.....	31,005	19,393	6,272	56,670	.....	.....	111,762	2,214	2,214	.....	705
*Estimated Total U. S. November 14, 1936.	3,954	3,954	.....	2,900	.....	32,156	19,250	6,178	57,584	.....	.....	112,841	2,214	2,214	.....	685
U. S. B. of M., *November 21, 1935	.....	.....	.....	†2,773	.....	27,814	17,904	5,663	51,371	.....	.....	109,179	.....	.....	.....	†599

* Estimated Bureau of Mines basis. † November, 1935, daily average.

STUDY DRILLING

I.P.A.A. committee to report on conditions

Tulsa.—In view of the fact that unnecessary and excessive drilling in proved fields results in less income per dollar of capital invested, this condition has been receiving the careful consideration and thought of the officers and of the executive committee of the Independent Petroleum Association of America for the past several months, and in view of the importance of the problem, a subcommittee of the Association's Committee on Balance of Supply With Demand was appointed some two weeks ago to work exclusively on this one problem.

The first meeting of this subcommittee, under the chairmanship of R. E. Hardwicke, Hardwicke, Brelsford & Cheek, Fort Worth, Texas, was held at 10 o'clock Tuesday morning, November 17, 1936, at the Mayo Hotel in Tulsa, Oklahoma. This subcommittee between now and December 1 will prepare its report containing suggestions and recommendations pertaining to the subject of unnecessary and excessive drilling in proved fields for submission to the annual meeting of the association which will be held in Oklahoma City, Oklahoma, on November 30 and December 1.

The members of the subcommittee, in addition to Hardwicke, are: Don R. Knowlton, Phillips Petroleum Company, Bartlesville, Oklahoma; C. E. Yeager, Texas Pacific Coal & Oil Company, Fort Worth, Texas; J. R. Pemberton, oil umpire, Los Angeles, California; W. P. Z. German, Skelly Oil Company, Tulsa, Oklahoma; Villard Martin, Tulsa, Oklahoma; A. S. Ritchie, McPherson Drilling Company, Wichita, Kansas; C. P. McGaha, Fain-McGaha Oil Corporation, Wichita Falls, Texas; and Van S. Welch, Flynn, Welch & Yates, Inc., Artesia, New Mexico.

PRICES AND TAXES

Lower retail cost partly offset by gasoline taxes

New York.—Improved methods in refining and cracking crude oil have enabled the petroleum industry to obtain almost twice as many gallons of gasoline from a barrel of oil as was possible in 1920. These technological advances have enabled the industry to pass the economies along to the consumer, with the result that the average retail price of a gallon of gasoline has been reduced from 29.74 cents in 1920 to only 13.55 cents in 1935.

Since the average U. S. motorist uses 700 gallons of gasoline a year, this means that American car owners are buying their annual supply of gasoline at a saving of $113.33, or more than half, over what motorists paid in 1920. However, the average motorist does not enjoy the saving because of gasoline sales taxes.

Taxes on 700 gallons of gasoline costing $208.18 in 1920 were only 63 cents. Taxes on the 700 gallons of gasoline costing $94.85 in 1935 were $37.03.

PRESSURE DROP

East Texas average is down 21 pounds in year

Tyler, Texas.—Average reservoir pressure in the East Texas field dropped 4.65 pounds during the 30-day period ending about November 12, according to readings taken by Texas Railroad Commission's engineers from 34 key wells. This slump lowered the average for the field to 1179.85 pounds, or a loss of 20.95 pounds since the January, 1936, survey.

Field Allowable

Allowable for the field on November 17 amounted to 442,793 barrels daily from 21,712 wells, including 16,321 wells that are listed as marginal producers. There were 74 accounted for dead wells on this date. No change is likely to be made in the proration factor, which has been 2.32 percent of the rated hourly flow since June 21, 1936, when December production schedules are released. The field has added 940 wells since the proration factor was lowered, and allowable production has increased 15,422 barrels.

On a marginal well basis the 940 new wells should have boosted production 18,800 barrels, but a number of the new completions and particularly old wells in stripper areas can not produce the 20-barrel marginal well quota. Standing threat of prosecution by the Federal Tender Board for false swearing in making monthly pipe line statements has caused operators to reveal their sub-marginal wells.

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to November 27, 1936)

DISTRICT	Bottom Grav.	Dif.	Top Grav.	Date
Oklahoma-Kansas	28—$0.94	2¢	40—$1.18	1- 9-36
N. and N.-C. Texas	28— .84	2¢	40— 1.08	1- 9-36
Texas Panhandle				
Gray County	34— .86	2¢	40— .98	1- 9-36
Carson-Hutchinson	34— .81	2¢	40— .93	1- 9-36
West Texas				
Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler, Upton	29— .76	2¢	36— .90	1-14-36
Pecos	* .85			1-14-36
West Central Texas	28— .84	2¢	40— 1.08	1- 9-36
East Central Texas	28— .91	2¢	40— 1.15	1- 9-36
East Texas	*1.15			1- 9-36
Talco	* .65			11-1-36
Rodessa	*1.10			1- 9-36
Texas Gulf Coast				
Anahuac - Dickinson, Flour Bluff, Turtle Bay	30— 1.04	2¢	40— 1.24	1- 9-36
Conroe	35— 1.24	2¢	40— 1.34	1- 9-36
Tomball, Satsuma	*1.30			1- 9-36
Cleveland	*1.00			1-11-34
†Goose Creek, Hull, Liberty, Orange, Pierce Junction, Barbers Hill, Raccoon Bend, Sugarland, West Columbia, Thompsons, Mykawa, Amelia, Plymouth, Quintana-O'Connor, North Quintana	Below 17— .88	2¢	34— 1.22	1- 9-36
South and S. W. Texas	Below			
Refugio (Light)	17— .88	2¢	34— 1.22	1- 9-36
Refugio (Heavy)	* .95			11- 1-36
Greta (Heavy)	* .95			11- 1-36
Saxet (Light)	*1.22			10- 1-36
Saxet (Heavy)	* .95			11- 1-36
Taft (Heavy)	* .95			11- 1-36
Mirando	* .90			11- 1-36
Pettus	*1.25			1- 9-36
Salt Flat	* .97			1-14-36
Darst Creek	* .97			1-14-36
Placedo (Heavy)	* .90			11- 1-36
Placedo (Light)	* .95			4- -36
Port Lavaca	* .97			
Heyser (Light)	*1.15			11-1-36
Heyser (Heavy)	* .90			11-1-36

* All gravities—flat rate.
† Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Bottom Grav.	Dif.	Top Grav.	Date
Arkansas				
El Dorado (Light) and Rainbow	25—$0.78	2¢	40—$1.10	1-10-36
El Dorado East Field and Smackover	* .75			1-10-36
North Louisiana	25— .78	2¢	40— 1.10	1-10-36
Urania	* .97			1-10-36
South Louisiana	Below			
Lockport	19— .92	2¢	34— 1.22	1- 9-36
Iowa Cameron Mds.	19— .82	2¢	34— 1.12	1- 9-36
Lafitte	*1.12			11- 1-36
Rocky Mountain States				
Salt Creek	29— .94	2¢	40— 1.18	1-10-36
Elk Basin	*1.18			7-20-36
Frannie (Light)	* .70			11- 4-36
Frannie (Heavy)	* .62			11- 4-36
Grass Crk., Wyo., (Light)	*1.18			7-20-36
Grass Creek (Heavy)	* .62			11- 4-36
Hamilton Dome	* .57			11- 4-36
Big Muddy	*1.11			1- 9-36
Rock Creek, Wyo.	*1.08½			11- 1-36
Sunburst	*1.15			6- 5-36
Lance Creek	* .90			1- 9-36
Osage	*1.08			
Cat Creek	*1.07			8-25-33
Cut Bank	*1.35			6- 3-36
Pondera	*1.05			9-29-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	29— .76	2¢	36— .90	1-14-36
Mid-West States				
Lima	*1.15			9-18-36
Illinois	*1.23			1- 9-36
Princeton	*1.23			1- 9-36
Western Kentucky	*1.28			11-1-36
Pennsylvania				
Bradford	*2.45			1-13-36
Sw. Pa. Pipe Line	*2.17			1-13-36
Eureka Pipe Line	*2.12			1-13-36
Buckeye Pipe Line	*1.97			1-13-36
Corning Grade	*1.32			9-18-36
Michigan				
Central Michigan	*1.32			9-16-36
Muskegon	*.70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33
Mexico				
F.O.B. Tampico (Net)	‡0.895			

* All gravities—flat rate.
‡ Average price, all oil sales being to small refineries.
‡ U. S. Currency, buyer pays tax.

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Out *4
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	‡Up *28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up *9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up 15

CRUDE PRODUCTION TAXES

Oklahoma—Five percent of gross value less royalty interest.

TEXAS—2¾ cents or 2¾ percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ¾ of 1c per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

* All gravities—flat rate.
+ Signal Hill 26 gravity.
‡ Seal Beach 26 gravity.

CALIFORNIA OIL PRICES

(All gravities above those quoted take highest prices of that field. Effective February 26, 1936)

Gravity	Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Fe Springs	New Hall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	....	$.80	$.76	$.76	$.77	$.78	.....	$.70	....	$.70	$.70	$.70	....
15-15.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.79	....
16-16.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
17-17.9	.80	.79	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
18-18.9	.80	.79	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
19-19.9	.82	.79	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	.....	.70	$.70	.74	.74	.71	$.70
20-20.9	.85	.79	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	.....	.....	.70	.78	.78	.72	.70
21-21.9	.88	.79	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	$.78	.....	.73	.82	.82	.74	.70
22-22.9	.92	.82	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	.....	.77	.87	.86	.78	.72
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	....	.96	.88	.93	.82	.92	.78	.....	.80	.92	.90	.82	.76
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	....	.99	.91	.96	.85	.96	.82	.....	.84	.97	.94	.86	.79
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	....	1.02	.95	....	.89	.99	.86	.....	.88	1.01	.98	.90	.83
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	....	1.05	.98	....	.92	1.03	.90	.....	.91	1.06	1.02	....	....
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	....	1.02	....	.96	1.06	.95	.....	.95	1.10	1.06	....	....
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	....	1.06	....	.99	1.10	.99	.....	.99	1.15	1.10	....	....
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	....	1.09	....	1.03	1.14	1.03	.....	1.02	1.20	1.14	....	....
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	F.O.B.	....	....	....	1.07	1.17	1.08	.....	1.06	1.25	1.18	....	....
31-31.9	....	.....	....	1.24	Line	1.24	1.22	Ship	Kettleman Hills			1.11	1.21	1.12	.....	1.09	1.29	....	....	....
32-32.9	....	....	....	1.27	....	1.27	1.27	....				1.14	1.25	1.16	.....	1.13	1.34	....	....	....
33-33.9	....	....	....	....	....	....	1.32	$.128		1.19		1.18	1.28	1.20	.....	1.17	1.38	....	....	....
34-34.9	....	....	....	....	....	....	1.37	1.32	....	1.23	....	1.22	1.32	1.25	.....	1.20	.....	....	....	....
35-35.9	....	....	....	....	....	....	1.42	1.35	....	1.27	....	1.25	....	1.29	.....	....	.....	....	....	....
36-36.9	....	....	....	....	....	....	1.46	1.39	....	1.31	....	1.29	....	1.33	.....	....	.....	....	....	....
37-37.9	....	....	....	....	....	....	1.51	1.43	....	1.35	....	1.32	....	1.37	.....	....	.....	....	....	....
38-38.9	....	....	....	....	....	....	1.56	....	....	1.39	....	1.36	....	1.42	.....	....	.....	....	....	....
39-39.9	....	....	....	....	....	....	1.61	....	....	1.43	....	1.40	....	.....	.....	....	.....	....	....	....
40-40.9	....	....	....	....	....	....	1.66	....	....	....	....	1.43	....	.....	.....	....	.....	....	....	....

Edited by
WM. V. GROSS, Associate Editor

Turkish Wildccat

SEARCH FOR OIL JUSTIFIES DRILLING DEEPER TESTS

By CEVAD EYUB TASMAN*

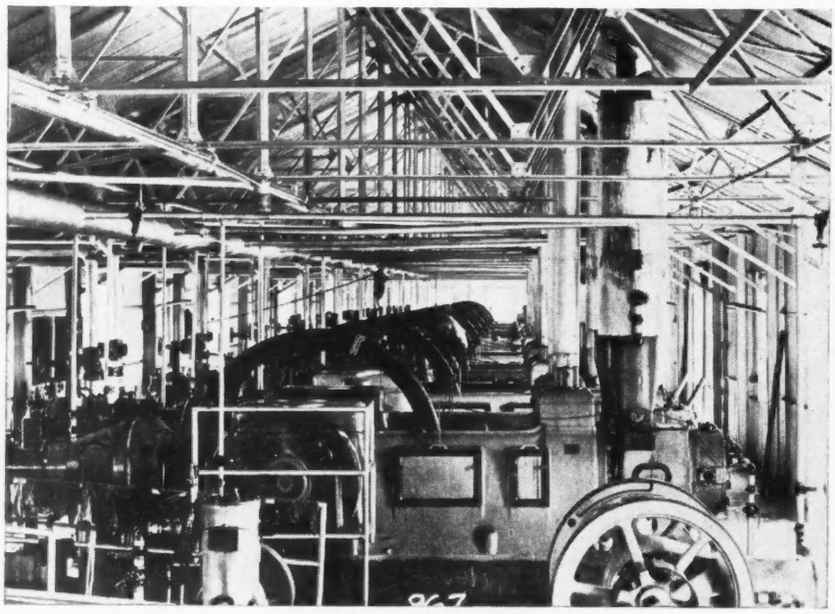
WITH the ever increasing use of petroleum and its derivatives in modern civilization, its exploration is engaging more and more attention. The early search for oil necessarily limited itself to the localities where seepages of gas or oil occurred. The relation of oil accumulation to certain geologic principles, hazy at first, began to become clearer with the study of the regions where oil was found. This resulted in certain generalizations. One of the earliest and the best known is the theory advanced by I. C. White in 1885 explaining the occurrence of oil in anticlinal structures due to differences in specific gravity. This theory has stood the test of time in a general way. Though not every anticline has been found to have oil accumulated underneath it, most of the oil fields discovered explained themselves as a result of structure. Hence, during the first twenty-five years of the present century, hose hunting for oil attacked the problem of its discovery guided solely by the anticlinal theory and its modification—the structural theory. Not only anticlines in the strict sense, but faults too, under special conditions, were found to form a suitable trap for oil accumulations.

Although the structural theory undoubtedly is still the principal consideration in oil finding, the theory of extensive migration as an important factor has been questioned. F. R. Clarke, in the San Antonio meeting of the American Association of Petroleum Geologists in 1931, presented a paper emphasizing the importance of the source material in the accumulation of oil. He drew attention to the fact that the assumption of sparsely and widely disseminated organic matter in shales and limestones and the accumulation of these by migration over long distances under anticlines or structural traps did not satisfy the conditions in some of the oil pools. It was suggested that oil reservoirs occurred in close proximity to the source material rich in organic matter producing petroleum. Recently, A. Irving Leverson in his address before the same association at Mexico City pointed out that, in the problem of oil finding, geologists must not restrict their work solely toward the search for anticlines and domes, but must study the stratigraphic phase of the problem more thoroughly than heretofore and must develop a technique to locate pools of overlap and sandlens type such as the East Texas and Venezuelan fields.

Although the task of the geologist is becoming more and more difficult with the realization of the complexity of the problem, he has acquired two very useful supplementary tools in the development of the study of micro-organisms and the geophysical science. Hence a modern organization investigating the possibilities of oil in a region, besides having a staff of geologists experienced in the practical observation of geologic phenomena and the special application of these to the petroleum accumulation problems, has a paleontological department with a laboratory where macro- and micro-fossils may be determined, and a geophysical force endeavoring to decipher the structural conditions in regions where the surface soil conceals the attitude of the rocks below. To this must be added the drilling crew. After all the preparatory work is done, the existence of oil is still determined only by drilling.

As the years have passed, the discovery of reliable surface indications of geologic structures which might possibly be favorable to oil accumulation has become increasingly difficult. A rough analogy is presented in the case of medical science. In spite of the many advances the number of people passing three score and ten is fewer now than formerly. Notwithstanding the assistance rendered by geology, a remarkable large percentage of wildcats are dry. But experience shows that geology applied to the finding of oil has considerably reduced the risk of failure.

Frederic H. Lahee, in his presidential address before the American Association of Petroleum Geologists at Houston in 1933, presented some very im-



Interior of Standard Oil Company of Venezuela's repressuring compressor station in Quirequire field.

*Cevat Eyub Tasman is the petroleum engineer and geologist formerly known in the United States as Djevad Eyoub. His name was changed in compliance with a recent Turkish decree stipulating permanent residents of that country must adopt typically Turkish names as their family names. The article presented herewith is translated from the Turkish which appeared in Maden Tetkik ve Arama, Enstitusu Yayini, Sayi:3, Temmuz 1936, Iki Ayda Bir Cikar.

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Industrial Supply Company, Inc., Wichita Falls, Texas, and Branches.
Okmulgee Supply Corp., Okmulgee, Okla., and Branches.
Stephen H. McCabe, 508 4th St., San Francisco, Calif.
Viking Automatic Sprinkler Co., 114 Sansome St., San Francisco, Calif.
Herley Supply Co., 3006 Cherry Ave., Long Beach, Calif.
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Bovaird & Co., Bradford, Pa.
Kane Supply Co., Kane Pa., and Branches.
Prichard Supply Co., Mannington, W. Va., and Branches.

portant statistic. It was shown that out of the 744 wildcat wells drilled in Texas only 15 or 2 percent were successful. The experience in other parts of the world though not supported by such large figures is similar. In Irak the seventh well, in Morocco the fifteenth year of exploration (1918-1933) discovered oil.

The drilling activity of the Petroleum Group M. T. A. Institute at Murefte began in 1935. During the six summer months, four shallow wells (55-135 meters) were drilled in the vicinity of Hoskoy on Marmora Sea. The drilling was in the neighborhood of an old Turkish well which was reported to have produced some oil previously.

Murefte is 81 miles from Istanbul on the European shore of the Marmora. The rise from the sea to the top of the Eocene limestone is fairly abrupt. Mt. Elie, an overthrust block capped with this limestone, is 680 meters high though only five kilometers from the shore. The structural conditions in front of the overthrust mass are obscured by numerous landslides. Some minor folds, however, are observed. The places where these are intersected with cross faulting are considered to offer possibilities of small traps for oil and gas. The Miocene sediments overlying the area are sands, marls and shales some of which show oil at Isterne Dere and at a branch flowing into Hora Dere.

Two of the wells drilled near Hora Dere last year had shows of oil but all contained salt water in quantity. The work then was suspended for the winter pending the acquisition of additional drilling material. The new equipment, which consists of a light cable tool machine powered with a 90-horse-power gasoline engine, was supplemented with a steel derrick 20 meters high made in Turkey. This well was started close to Murefte on April 24. It showed some oil between 82 and 84 meters, some gas between 115 and 116 meters. On going deeper caving troubles necessitated the use of casing of which 121.5 meters of 8¼-inch was lowered. On May 8th at 125.9 meters, a flow of gas estimated at three million cubic feet, 85,000 cubic meters), pushing the tools and ejecting the mud to the crown block, was encountered. The gas flowed freely for five days and pressure decreased. When it was measured at the end of this period, it showed 600,000 cubic feet (17,000 cubic meters). On lowering the tools it was discovered that a bridge had formed. After removing this the flow increased to 1,800,000 cubic feet (51,000 cubicmeters). The following morning a third measurement showed the gas flow at 1,000,000 cubic feet (28,000 cubic meters). The gas is wet but the benzine content has not yet been determined. On drilling further a flow of brackish water was met between 147.5 and 150 meters. The water rose up 70 meters, but later subsided below the gas horizon.

The significance of the above phenomenon in Murefte may be summed up in the statement that the upper Tertiary deposits of the region are petroliferous and that the deeper sands may contain oil or gas in commercial quantity. But the error must be avoided that such accumulation necessarily exists. It is simply a good sign encouraging further exploration.

All of these old pumping outfits are being replaced by the most modern equipment in Motembo Basin naphtha field of Cuba, writes Charles Ginart of Habana.

SHELL IN COLOMBIA

Shell interests have organized a new company known as Campania de Petroleo Shell de Colombia for the purpose of operating in Colombia.

Shell formerly was in Colombia, but withdrew, and is now re-entering, with the company registered as having a capital of 3,000,000 pesos. F. J. Hapwood is in charge of the company's offices at Bogota.

Strike Threatens

[*Continued from page 10*]

year to all parts of the world, THE OIL WEEKLY has received an interesting group of data presented before the Mexican congress of September 1, 1936, by Licenciado Jenaro V. Vasquez, head of the department of labor of Mexico.

These data show that while the average wage for masons throughout the State of Vera Cruz in 1935 was $2.17 and that in the State of Tamaulipas was $2.09 and that throughout the republic was $1.89, the daily wage paid masons in the oil industry varied from a minimum of $5.20 to a maximum of $8.40. The same data showed that while carpenters throughout the Mexican republic averaged $2.05 per day (those in Vera Cruz got $2.30 and those in Tamaulipas, $2.29), the minimum wage paid carpenters in Mexico by the oil industry was a minimum of $3.40 and a maximum of $6.00. Truck drivers, electricians, longshoremen and black smiths were correspondingly higher paid by the oil industry than by other industries, according to figures of the head of the department of labor.

According to the data presented before congress by Vasquez, minimum wages paid in the oil industry to workers are well above the minimum prescribed by the federal board of conciliation and arbitration December 24, 1935, to be in effect during 1936, which was $3.30 per day for petroleum workers in industrial centers and in the fields. The industry pays oil field workers (roughnecks and roustabouts) a minimum of $4.00 per day.

While a detailed list showing the general nature of most of the demands made by the syndicate appeared on page 54 of THE OIL WEEKLY of November 23, the demands made include $17 to $20 per day for carpenters, the same for masons, $9.50 to $20 per day for chauffeurs (truck drivers), $17 to $20 for electricians, $9.50 to $17 for longshoremen, $17 to $20 per day for blacksmiths, and a minimum wage of $7 per day for unskilled labor.

Under the peculiar phrasing of the "contrato ley" submitted to but refused by the oil companies, some of the above classifications would be entitled to as much as $50 per day under certain conditions.

PLANS GAS LINE

Petromex line from Poza Rica to Mexico City

Application has been made by Compania de Petroleos de Mexico, S. A., to the Mexican Ministry of national economy, for a concession to build and operate a natural gas pipe line from its Poza Rica property, northern Vera Cruz state, to Mexico City. The pipe line will be 240 kilometers long, 30 kilometers longer than the oil line of Mexican Eagle Oil Company from Palma Sola, Vera Cruz, to its Mexico City refinery. Costs and other details of the line are being worked out by Petromex engineers. The company expects to receive the franchise before Christmas and to start building the line, at a reported cost of several million dollars soon thereafter.

Wildcat Produces

NEW OKLAHOMA POOL IN VICINITY OF FREDERICK

WEEKLY STAFF REPORT

Ardmore, Okla.—Proving the productivity of an area which had almost been given up as worthless, a test in Southern Oklahoma came into the limelight last week and aided in a revival of the interest recently accorded the area in the vicinity of Frederick, in Tillman County.

In the New Tussy area, centering in Garvin and Carter Counties, Cox & Hamon had another producer, to further the interest lately shown in the area.

Operators saw some hope for Parson's Olson 1, near Marlow, Stephens County, and were testing a show of oil at 5760 feet. The test was disappointing several weeks ago when the plug was drilled and mud and salt water were found in the hole.

The revival of interest in the Frederick area of Tillman County was occasioned by finding production at Indian Territory Illuminating Oil Company and Foster Minerals Corporation's Hatler 1, C SW NE 32-2s-17w, due south of Frederick. During a 15-minute test, the well flowed over the crown block, indicating an output between 60 and 70 barrels of oil per hour. Geologists are not in accord regarding the producing formation, some classing it to be the Cisco lime, while others consider it the Canyon. Both formations, however, are in the Pennsylvanian. A drill-stem test showed high gravity oil with much gas and some water from approximately 3814 to 3829 feet. Operators were rigging up late in the week to run casing and make further tests.

Hatler 1 is the climax to some disappointing tests which have been drilled on what looked to be promising geology. To the northwest, Gulf Oil Corporation's Wearmouth 1, SE NW SE 31-1s-18w, was started in September, 1935, and was abandoned in September, 1936, at 5127 feet. Outstanding characteristic of the well was the lack of sand encountered during the time it was drilling.

Near Wearmouth 1, D. L. Tate and others made location for Bernheim 1, NEc NW 16-1s-19w, and drilled steadily until October 12, 1936, when the well was abandoned at 3001 feet.

To the southeast of the new producer, Gulf Oil Corporation drilled another test which proved futile. McWilliams 1, NW SW SW 15-3s-17w, started in May of 1936, and was the first well in the area to encounter Hunton lime. McWilliams 1 topped the formation at 5146 feet; had Sylvan shale at 5250 feet, Viola lime at 5298 feet, Simpson at 5539 feet, Siliceous at 5795 feet, and was abandoned at 5808 feet.

In the Tussy district of Garvin County, Cox & Hamon's Davis 7, SW NW SE 32-1n-3w, came into production, making 80 barrels of oil in 18 hours, swabbing through two-inch tubing. The well is estimated by operators to be good for about 125 barrels daily with the oil coming from between 1970 and 2348 feet in sands had at those depths.

To Test Stephens Wildcat

In the area near Marlow in Stephens County, Ed V. Parson's Olson 1, C SW SW 21-2n-8w, which attracted much attention about two weeks ago by making a good show then found salt water and mud in the hole when the plug was drilled, drilled in sand from 5726 to 5730 feet. A core taken from 5730 to 5735 feet showed a recovery of two feet of sand with an odor and a stain of oil. After drilling to 5760 feet, operators found 15 feet of sand showing oil. It was to be tested.

Power Oil Company's Lancaster Trust Company 1, C SW NE 10-1s-2e, near Davis in Murray County, bailed 100 feet of water from the hole and was preparing to resume drilling. Standard tools were rigged at 3002 feet.

Gulf Oil Corporation's Johnson 8, C SW NW 28-2s-3w, in the old Fox pool of Carter County, was cleaning out at 7478 feet. It will be acidized when cleaning operations are completed.

In the Oswalt area of Love County, Sinclair Prairie Oil Company's Stockton 1, SEc SW 26-6s-2w, flowed 90 barrels of oil by heads during the latter part of the week. Production was coming from around 6927 feet, and operators were waiting on equipment before starting swabbing operations.

THREE FITTS WELLS

Area still state's most active; extend Olympic

Tulsa.—Three new producers were completed in the Fitts field of Pontotoc County last week, keeping it at the top of the list as the most active area in the Sooner state. Some increase was also noted in activity in Seminole County, and an extension was made to the Olympic pool of Hughes County by a well flowing 571 barrels of oil in 24 hours following a shot in the Sonora sand.

First of the three new producers at Fitts was Amerada Petroleum Corporation's Wooley 3, NE SE SE 21-2n-7e, which flowed 480 barrels of oil through casing, and extended the Viola-Bromide area to the north. Production was coming from the Viola lime at 4372 feet. The well was acidized with 10,000 gallons and shut in following the flow.

Simpson-Fell Oil Company's Westheimer 4-A, NE SE NE 27-2n-7e, topped Hunton lime at 3320 feet, and after drill-

Gusher at Moore

OKLAHOMA WELL FLOWS 366 BARRELS IN 24 HOURS

Oklahoma City.—Talk of oil men in this section of Oklahoma is the sudden gusher production of a well in the Moore pool of Cleveland County which extends the gusher level of the field. Another good producer was in the process of completion, and some rather disappointing showings were had in a test in the Edmond pool of Oklahoma County.

Carter Oil Company's Walker 1, SW NE SW 27-10n-2w, was the surprise well, which, after blowing out and cleaning itself, flowed 366 barrels of oil in 24 minutes. Located a quarter mile southeast of big production, Walker 1 is believed to be producing from the Dolomite and Wilcox sand, seven-inch pipe having been set at 7093 feet. Earlier in the week, the well was opened and made one small flow of oil and water. Reopened two hours later, the well made another flow of much oil and water, then bridged over at about 7100 feet. The flow was had after the bridge had been knocked out of the hole.

In the Edmond pool of Oklahoma County, Ohio Oil Company's Johnson 1, SEc 25-14n-4w, topped the second Wilcox sand at 6675 feet and drilled to 6680 feet, where it filled 3000 feet with water and 100 feet with oil. A core from 6680 to 6683 feet resulted in a two-foot recovery of sandy dolomite with a slightly salty taste. It was to be tested before any further operations were attempted.

Sinclair Prairie Oil Company's Strauss 1, SWc 22-10n-2w, on the east side of Moore pool, found 31 feet of well-saturated Wilcox sand between 7242 and 7273 feet, the total depth. Preparations were being made to complete the well after bailing operations have been completed.

Knox Gargin's Gray 1, near Northeast Eleventh Street and Laird Avenue, in the Oklahoma City field, showed a decided increase in production on a new test. A second gauge gave the well a 24-hour flow of 2556 barrels of oil accompanied by 12,000,000 cubic feet of gas, as compared with the first potential of 1776 barrels of oil. The well was given a shot of nitroglycerine at 6445 feet, the total depth.

ing to 3646 feet, flowed 50 barrels of oil in two minutes through tubing and 76 barrels of oil in five minutes through casing. It was shut in to take potential.

E. H. Moore et al's Craddock 1-A, NWc SW 29-2n-7e, topped Hunton lime at 3268 feet, and after encountering Sylvan shale at 3590 feet, was acidized with 6000 gallons. The well flowed 135 barrels of oil the first hour through tubing, and 95 barrels of oil the second hour accompanied by 2,500,000 cubic feet of gas. It was shut in for potential.

The same interest's Smith 4-A, NEc NW 31-2n-7e, continued to flow from the Dense lime at 4555 feet. The first hour the well made 347 barrels of oil through tubing, 289 barrels the second hour and 231 barrels the third hour, 232 barrels the fourth hour and was shut in.

New Jesse Well

In the Jesse pool of Pontotoc County, Mid-Continent Petroleum Corporation's Statler 1, SEc, SW 2-1n-7e, flowed 870 barrels of oil from 4655 feet in the Bromide lime.

Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Tilghman 1, NEc, NW 2-10n-5e, in the North Earlsboro pool of Seminole County, topped Viola lime at 4569 feet, and drilled to 4585 feet where the plug was drilled. The well then pumped 309 barrels of oil in 10 hours with no water.

The same interest's Davis 1, SWc, NE 3-10n-5e, flowed 161 barrels of oil in 24 hours through 11/64-inch choke. Allowable on the well has been placed at 100 barrels of oil daily.

Wood Oil Company's Ashby 2, SE NE NW 22-7n-5e, west of Little River in Seminole County, pulled and re-ran tubing, following which it swabbed 54 barrels of oil in 10 hours with no water showing. Gas flow was estimated at 1,000,000 cubic feet.

Carter Oil Company's Stanford 3, NW NE SE 16-9n-6e, in the Seminole City pool, drilled in the Earlsboro sand from 3573 to 3580 feet, and show with 10 quarts. The well then filled 500 feet with oil and operators were preparing to pump.

North Eearlsboro

In the North Earlsboro pool, Gulf Oil Corporation's Manuel 1, SE NW SE 35-11n-5e, found 400 feet of salt water in the hole when plugs were drilled. The well was bottomed at 4602 feet in the Viola lime. In 1935, Amerada Petroleum Corporation and Stanolind Oil and Gas Company drilled Klabsuba 1, SWc SE 35-11n-5e, which was completed as a producer from the Wilcox sand at 4628 feet. It topped the Viola lime at 4552 feet.

Fleetborn Drilling Company's Tanner 1, NWc, SE 28-17n-5e, south of Cushing in Lincoln County, set packer at 3945 feet after taking a drill-stem test. Opened for 17 minutes, the well showed gas estimated at 4,000,000 cubic feet with no oil. It was cored from 3967 to 3986 feet and recovered 19 feet of dolomite and sandy dolomite with no show of oil or gas. Operators were reaming the hole to take another test.

Production in the Olympic pool of Hughes County was extended one location northwest when Manahan Oil Company's Black 2, SW NE SE 25-10n-8e, flowed 571 barrels of oil in 24 hours after being shot with 70 quarts in the Senora sand between 1743 and 1778 feet.

53 COMPLETIONS

Tulsa.—Operators in Oklahoma completed 53 wells last week, 32 of which were oil wells with an initial production of 27,034 barrels. Three gas wells had a combined output of 10,650,000 cubic feet. There were 15 dry holes and two abandoned locations.

There were 54 first reports in the state. Pontotoc and Seminole counties tied for first place with eight each. Creek and Okmulgee counties had six each, and five were reported in Osage Counties. Caddo, Hughes, Lincoln and Okfuskee had two each, and Carter, Cleveland, Coal, Jackson, Kay, Kiowa, Logan, Muskogee, Noble, Oklahoma, Pottawatomie, Stephens and Tulsa counties had one each.

OKLAHOMA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ATOKA COUNTY—		
Prairie Investment, Cobb 1, nw ne nw 19-3s-11e	*	725
CADDO COUNTY—		
Wasteka Oil, Griffin 1, sw se ne 27-6n-10w	*	6597
CARTER COUNTY—		
Cox & Hammon, R. Wesley 1, nw sw sw 3-4s-3w (pb 1090)	3	1095
Shell, Wirt Franklin 69, sw sw ne 8-4s-3w	*	1758
Pure Oil, Westheimer & Daube 23, nw ne ne 9-4s-3w	26	1119
COMANCHE COUNTY—		
Kennedy & Musgrove, Conway 1, nw nw nw 3-3n-10w	lcn.	abd.
COTTON COUNTY—		
Red River Royalty, Anderson 2, se nw sw 23-1s-10w	¶⅛	2184
CREEK COUNTY—		
Collins, O'Rourke 1, se ne sw 17-16n-11e	20	2307
Jackson, Eufaula 5, cnw nw 5-18n-11e	*	1812
Commercial Drlg., Swab 7, sw nw sw 17-19n-9e	35	2367
Rosa Wright, Davis 4, nw nw se 23-17n-10e	10	1950
Sinclair Prairie, Jones 9, cse nw 4-17n-4e (pb 2659)	140	2661
HUGHES COUNTY—		
Davon, Hurley 1, cn½ se nw 5-8n-10e (pb 3152)	¶10¼	3171
Sivils, Montgomery 1, nw sw nw 7-9n-9e	*	3540
JEFFERSON COUNTY—		
Pearson et al, Douthitt 1, ne ne ne 24-6s-9w	*	4322
LINCOLN COUNTY—		
Magnolia, Ross 7, nw se se 2-14n-3e	110	4247
MARSHALL COUNTY—		
Leavell Coal, Brent 9, sw ne se 1-8s-5e	23	536
OKFUSKEE COUNTY—		
Manahan Oil, Dolton 13, se nw se 36-10n-8e	312	1747
Arkansas Royalty, McIntosh 3, se nw ne 19-10n-9e	120	1830
Palmer 2, sw nw ne 19-10n-9e	28	1825
Chapman, Peter King "B" 4, sw nw sw 30-10n-9e	249	1770
Amerada-Stanolind, Carolina 3, ne sw sw 31-10n-9e	192	1750
Moffett et al, Pharoh 3, cnl se nw 26-11n-11e	*	1701
Henthorn, Stake 1-A, sw se ne 13-13n-14e	*	1332
OKMULGEE COUNTY—		
Collins, Webb 1-A, nw se sw 27-16n-11e	¶¼	2455
OSAGE COUNTY—		
Ohio Osage, 12, nw nw nw 16-21n-9e	20	300
Johnson, 16, sw nw se 30-21n-9e	*	329
Tidewater, Graves 9, sw nw ne 9-24n-7e	168	2688
Morrison & Alexander, 6, nw ne se 35-25n-11e	8	1732
PAWNEE COUNTY—		
Wood Oil, Mann 1-A, nw sw sw 23-20n-7e	*	3260
PONTOTOC COUNTY—		
Blackstock, Danials 5, nw se sw 21-2n-7e	¶3¼ & 5904	3875
Magnolia, Norris 6, ne sw se 21-2n-7e	¶2¾ & 2364	4340
Sinclair Prairie, Wooley 3, se sw sw 22-2n-7e	¶2¼ & 2550	4372
Blackstock, Moody 3, se sw sw 23-2n-7e	¶1½ & 1439	4325
Moore, Moody 2-A, ne nw nw 26-2n-7e	¶3½ & 5016	3794
Magnolia, Simpson 13, ne ne ne 29-2n-7e	¶3 & 2496	3720
Moore, Schauers 14, ne nw nw 29-2n-7e	¶1¼ & 2094	4353
Beebe Oil, Allen 1, sw se sw 23-5n-5e	15	2420
Barbara Oil, Yoakum 11, csl sw sw 9-5n-8e	*	914
Diamond, Fee 1, se se se 30-5n-8e	*	1670
POTTAWATOMIE COUNTY—		
Mid-Texas, Brandenburg 1, se se nw 21-7n-4e (otd 4184) (pb 4190)	15	4199
Carter Oil, Snell 1, ne sw sw 26-11n-6e	50	4146
SEMINOLE COUNTY—		
Sinclair Prairie, Rodgers 2, ne ne se 12-5n-7e	112	4193
Simpson et al, Graham 1, se se ne 9-6n-6e	*	2683
C. Kustler, Scroggins 1, ne sw sw 34-7n-6e	lcn.	abn.
Patterson, Scroggins 1, se nw sw 34-7n-6e	10	876
Rodgers, Campbell 1, nw se ne 17-9n-7e	10	3472
Magnolia, Drewery 4, ne se se 18-9n-7e	50	3531
Browning 3, cs½ se nw 14-10n-6e (otd 4159)	3210	4188
Amerada et al, Yarhola 1, ne nw nw 36-10n-7e	235	3638
STEPHENS COUNTY—		
Texas Co., Tomlin 4, sw nw nw 15-3s-5w	*	1482
TULSA COUNTY—		
Johnson O&R., Holms & Bailey 3, sw ne ne 31-19n-10e	*	2460

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Skelly, Bloomer 3, sw sw ne 36-17s-11w	2637	3270
Skelly, Bloomer 4, se sw ne 36-17s-11w	2582	3268
BUTLER COUNTY—		
Sheldon & Wixon, Houston 1, se se nw 15-28s-7e	*	3164
CLARK COUNTY—		
Olson & Watchorn, Morrison 1, cse sw 17-32s-21w	2358	6481
COFFEY COUNTY—		
Aikman & Braden, Scott 2, nw nw sw 13-23s-14e	20	1633
Selby O&G, Scott 1, se nw nw 13-23s-14e	40	1624
Henderson & Holden, McCartney 2, se se ne 14-23s-14e	30	1622
COWLEY COUNTY—		
Roth-Faurot & Texas, David "B" 2, nw sw se 35-30s-4e	79	3007
ELLIS COUNTY—		
Lario O&G, Marshall 1, nw se ne 36-11s-18w	795	3650
Stanolind, Austin 34, sw se ne 36-12s-16w	232	3125
James Brouk et al, Jacobs 1, nw nw se 31-15s-16w	*	3476
ELLSWORTH COUNTY—		
Carter et al, Georgia 1, se se se 27-17s-9w	1292	3191
Carter et al, Mollhagen 2, nw nw nw 35-17s-9w	636	3189
GRAHAM COUNTY—		
Noah & Young, Hills 1, nw se se 19-10s-21w	*	3974
GREENWOOD COUNTY—		
Hale & Reese, Needles 1, ne sw nw 12-25s-10e	*	2135
McGinnis, Marhenke 1, sw ne se 34-25s-10e (otd 1840) (pb 1840)	8	2450
Mohawk Oil, Edgar 2, se se sw 2-28s-8e	*	2876

New Discoveries

CHAUTAUQUA COUNTY LEADS LIST OF BIG DEVELOPMENTS

WEEKLY STAFF REPORT

Wichita.—Kansas, which has been receiving numerous discoveries and extensions during the past two weeks, had one of its best weeks during the past seven-day period. The most interesting news came from Chautauqua County, where Union Gas Company completed the largest well found in this section of the state in many years. The well is in the east edge of the Longton gas field. A new producing area was opened in Ellis County, and Rooks County received its fifth oil field. Meanwhile, the Weathered pool of Cowley County was extended by its largest producer.

The Chautauqua County well, Union Gas Company's Wilson 1, NEc 14-33s-12e, 15 miles northeast of Sedan, was first reported making 3000 barrels of oil daily. The well was drilled in a small oil producing area at the east edge of the Longton gas field, the oil supposedly coming from the Wilcox sand. Bottomed at 1800 feet, the well later made 67 barrels of oil an hour for three hours or an average of about 1600 barrels daily. Operators have staked two new locations, one 500 feet due north of the new producer and the other 500 feet due south.

Company, Well and Location	Init. Prod. Bbls.	Depth
MARION COUNTY—		
Minor et al, Robison 1, cne sw 15-20s-5e	*	2390
McPHERSON COUNTY—		
Derby Oil, Arnold 2, nw sw sw 16-21s-1w	1390	3335
Continental Oil, Lagree 1, nw nw se 32-21s-1w	83	3340
PRATT COUNTY—		
I. T. I. O., Bolt 1, cnw ne 5-29s-11w	*	4397
RENO COUNTY—		
McBride, Seimens 2, ne se se 26-22s-4w	*	3700
Pryor & Lockhart, Kerr 1, cnw 23-23s-8w	*	4152
Skelly Oil, Chesshire 2, csw se 3-24s-4w	½M 1234	3375
Shell, Brown 2, cne nw 10-24s-4w	1713	3369
Magnolia, Harris "C" 4, nw nw sw 9-26s-4w	868	4042
Shell, Reece 3, cel sw 11-26s-9w	8820	4134
RICE COUNTY—		
Empire, Jansen "A" 7, se nw nw 3-18s-8w	856	3260
Continental et al, Dickey 1, ne nw ne 24-18s-8w	873	3222
Texas Co., Schartz 2, se se se 33-19s-10w	1950	3326
Empire, Habiger 2, sw se ne 20-19s-9w	1376	3245
Shell, Hathway 1, ne ne se 33-19s-10w	15	3334
Sinclair Prairie, Proffitt 1, nw nw nw 3-20s-10w	1184	3329
Mid-Continent, Wood 3, se ne ne 4-20s-10w	1174	3345
Magnolia, Bayer 3, sw nw nw 7-20s-10w	1601	3294
RUSH COUNTY—		
Wixon et al, Gorham Estate 1, nw nw sw 35-15s-16w	*	3514
Schermerhorn, Mameth 2, se se ne 22-18s-16w	217	3562
RUSSELL COUNTY—		
Hartman & Blair, Rouback 5, sw sw nw 2-14s-15w	2768	3063
Hartman & Blair, Harbaugh 2, se ne sw 25-14s-15w (otd 3150)	740	3166
National Ref., Reinhardt "C" 2, sw sw se 25-14s-15w	1757	3157
W. I. Southern, Sellens "A" 2, nw ne sw 26-15s-13w	357	3270
W. I. Southern, Sellens 6, nw nw sw 29-15s-13w	1908	3297
SEDGWICK COUNTY—		
Continental, Goodrich 3, ne ne sw 16-25s-1e	487	3336
WOODSON COUNTY—		
Woodson Pipe Line, Dixon 1, sw se ne 14-24s-13e	10	1722
Sheedy et al, Brown 1, cs½ s½ se 22-26s-14e	*	1543

*Failures; †Junked; ¶Million cu. ft. gas.

New Ellis Area

A new oil producing area is thought to have been opened 15 miles southeast of Hays in Ellis County, as Taylor et al's Emery 1, NEc 23-14s-18w, began showing for production from the Siliceous lime. Top of the lime was found at 3558 feet, and the first oil showing was encountered at 3566 feet. It started making four bailers of oil an hour. After being drilled to 3570 feet, the hole filled 500 feet with oil in five and one-half hours. It may be acidized before a production test is made. The new producer is five miles northeast of production in the Ruder pool. It will give Ellis County its fifteenth oil pool.

L. C. D. Drilling Company et al's Westhusin 1, C NE SE 11-9s-17w, five miles northeast of Plainville in Rooks County, opened the fifth oil pool in the county when it pumped 504 barrels of oil and some water from the Lansing lime at 3243 feet. Operators reported the water showing with the oil was not coming from the bottom of the hole, but was coming from a break in the lime between 3205 and 3210 feet. Seven-inch casing was set at 3147 feet and if the intrusion continues, casing will be lowered.

Frost et al's McKinley 2-B, NEc SE NW 33-31s-3e, has been completed as the biggest producer in the Weathered pool of Cowley County. Extending production one location southwest, the well had a potential of 2887 barrels of oil from the Siliceous lime at 3282½ feet. A northeast diagonal offset to the new producer was completed recently for 2048 barrels of oil. Seven producers in the field have a combined potential of more than 10,000 barrels. The pool, four and one-half miles southeast of Udall, is said to have the largest average well classification in Cowley County, and is the center of activity there.

Russell County Active

Russell County headed the list as the most active county in the state for the week. In the Gorham pool, Stanolind Oil and Gas Company's Dartland 1-C, NEc, SE 5-14s-15w, was completed for 1008 barrels of oil from the Topeka lime at 2776 feet.

Topeka lime production was believed to have been encountered by Saco Oil Company's Gurney 1, SE SW SW 23-14s-14w, in the Gurney pool. Top of the lime was found at 2675 feet, and oil was found from 2687 to 2695 feet and again from 2782 to 2790 feet, the total depth. After oil filled the hole 1000 feet, eight-inch casing was set at 2300 feet and under-reaming to the top of the lime will be completed before starting production test. Gurney 1 is the first Topeka lime producer for the pool, and is offset on either side by Oswald lime producers.

W. I. Southern, Inc.'s George Sellens 1, SE SW SW 20-15s-13w, in the Sellens area, topped the Lansing lime at 2988 feet and had the pay formation between 2999 and 3004 feet. The hole then filled 1000 feet with oil in two hours, and operators were to acidize.

The same company's Sellens Heirs A, SEc SW 30-15s-13w, topped the Siliceous lime at 3262 feet, and stopped at 3266 feet. Acidized with 3000 gallons, the well established a potential of 1115 barrels of oil. Sellens Heirs 6, NWc SW 29-15s-13w, had the Siliceous lime at 3294 feet and after drilling to 3298 feet, was acidized with 4000 gallons. Its potential was set at 1908 barrels of oil. Michaelis 1, of W. I. Southern, Inc., NEc NW 31-15s-13w, had Siliceous lime from 3264 to 3270 feet. Following acidization with 4000 gallons, the well made a potential of 2415 barrels of oil a day.

Alva Billings completed Herbel 1-B, SEc SW 26-14s-14w, in the South Gurney pool, for 610 barrels of oil from the Oswald lime at 3020 feet following acid treatment.

Ellis County

Harris & Haun completed Karlin 1, an east offset to the discovery producer in the Catherine pool of Ellis County. Karlin 1 pumped 633 barrels of oil after being acidized in the Siliceous lime at 3400 feet. The discovery well is in SEc SW 3-13s-17w.

Brouk et al's Jacobs 1, NWc, SE 31-15s-16w, west of Pfeifer, had a hole full of water in the Siliceous lime from 3472 to 3476 feet and was abandoned.

Ted Kors et al's Koblitz 1, SE SW NW 23-12s-18w, north of Hays, was reported making from five to eight bailers of oil per hour from the Lansing lime at 3498 feet. Eight-inch casing was set at 3124 feet. Location has been made in SEc 13-12s-19w for O'Laughlin 1, by Turner, Brooke and Martin. These operators have a 3400-acre block in the area.

Ohio Oil Company's Decker 5, NEc 20-21s-1w, in the Graber pool of McPherson County, topped Siliceous lime at 3480 feet and was to run pipe to shut off water encountered in the Wilcox sand before drilling into the Siliceous lime. Although the Hunton lime is the producing formation in the Graber pool, Decker 5 is being carried to the lower formations, which, so far have been found non-productive.

E. B. Shawver's Kaegi 2, NE NW NW 21-19s-1w, in the northeast part of the Ritz-Canton pool, was completed for 227 barrels of oil from the Wilcox sand at 3429 feet. It is the first Wilcox sand

producer in that area, and made 192 barrels of oil in preliminary tests.

Empire Oil & Refining Company and Atlantic Refining Company's Jordan 1, SWc NW 15-25s-14w, southeast of St. John in Stafford County, apparently has extended the Kipp area to the northwest. It had the Lansing lime at 3640 feet, which yielded a good show of gas and oil from 3710 to 3718 feet. Cored from 3722 to 3727 feet, the well later filled 1600 feet with oil in six and one-half hours, then filled 2900 feet with oil and was shut in. Tanks were being erected for a production test.

Pools Extended

Vickers Petroleum Company's Ehly 1, SEc SW 15-16s-12w, which extended the Beaver pool of Barton County one and one-half miles to the southeast, ran tubing and rods preparatory to taking a production test. The hole filled 2850 feet with oil from the basal sand at 3331 feet after drilling the plug at 3324 feet. It was later completed for 311 barrels of oil from the sand at a total depth of 3345 feet.

Torry & Feaster's Wallace 1, SWc NE 32-19s-9w, has given the old Chase pool of Rice County an extension one location to the northeast, making 95 barrels of oil natural in four hours from the Siliceous lime at 3233 feet.

In the Schartz pool, Mid-Continent Petroleum Corporation's Wood 2, NWc NE 4-20s-10w, was completed for 1746 barrels of oil from the Siliceous lime at 3331 feet after being acidized. The initial producer on the lease was completed for 2432 barrels of oil and extended the field one-half mile to the south.

A report from the Saxman pool, southeast of Lyons, states L. E. Douglas et al's Hughes 1, SEc 6-21s-7w, was flowing by heads from between 3332 and 3333 feet in a conglomerate pay. It is a west offset to the discovery well of the pool.

R. J. Wallace et al's Tucker 1, in Section 20-24s-5w, apparently has opened a new area south of the Arkansas river in Reno County. It has been completed for 2088 barrels of oil from the chat at 3390 feet.

E. B. Shawver's Erker 14, SE SW SW 33-31s-1w, in the Wellington pool of Sumner County, was completed for an estimated 1735 barrels of oil from the chat at around 3670 feet. It is one of the bigger wells to be completed in the area, and extends production to the south.

W. C. McBride & Olson Drilling Company's Kinlund 1, NE NW NE 24-34s-1e, southeast of Wellington, topped the Siliceous lime at 3894 feet, and cored to 3908 feet where sulphur water was encountered. It was abandoned.

45 COMPLETIONS

Wichita. — Completions in Kansas reached 45 last week, an increase of six over the previous week. There were 34 oil wells among the tests finished. Initial production of these wells totaled 42,090 barrels. There were no gas wells and 11 dry holes.

Of the 38 new starts made in the state, eight were in Rice County. Reno County was second with 5; Barton County had 4; Ellsworth, Russell and Sumner counties had 3 each, and there was one apiece for Butler, Clark, Coffey, Cowley, Ellis, Lyon, Marion, Rush, Trego and Woodson counties.

Nine Oil Wells

LEA COUNTY COMPLETIONS AHEAD OF NEW STARTS

WEEKLY STAFF REPORT

Hobbs, N. M.—Lea County added nine oil producers the past week, and locations were made for seven new tests to be drilled in four separate areas. Completions are due to maintain a high weekly average during the remainder of the year because of large volume of field work launched within the past six weeks. A decline in development work during this period is quite likely, as nearly all the active companies have exceeded their respective well quotas for 1936, and will defer taking care of offsets until the 1937 appropriation is available.

Monument field was credited with five completions and three locations the past week. The Texas Company's J. W. Cooper 3, C SW NE 5-20s-37e, contributed the largest initial yield in making a natural flow of 130 barrels oil per hour through three-quarter-inch tubing choke from lime at 3885 feet, or 314 feet sub sea. The gas/oil ratio averaged 534 feet per barrel. Cooper 2, C NE NE 5-20s-37e, was running tubing to complete at 3900 feet, having drilled 331 feet below sea level, and rig has been skidded to drill Cooper 4, C SE NE 5-20s-37e.

Atlantic Refining Company's Crutchfield 1, C NE SE 32-19s-37e, south of Monument townsite, failed to case off big gas production in cementing 5½-inch pipe at 3765 feet with 800 sacks of cement. Production test made at 3914 feet, or 340 feet below sea level, after using 3000 gallons of acid, credited the well with averaging 13 barrels of oil per hour for five hours through tubing, and gas flow rated at 20,000,000 feet daily. An effort will be made to shut off the gas from upper lime section by installing packer on tubing. Amerada Petroleum Corporation added a comparatively large producer for the northwest portion of the field in completing C. H. Weir 7, C SW SE 26-19s-36e, with a flow of 489 barrels in 4¾ hours through open tubing after using 2000 gallons of acid at 3993 feet. The gas/oil ratio averaged 1175 feet per barrel.

Gulf Oil Corporation's State-Kutter 2-B, C SW NW 28-19s-37e, situated on east edge of the north portion of the Monument field, tested 17½ barrels oil per hour on gas lift after using acid twice in lime at 3946 feet, or 324 feet below sea level. Humble Oil & Refining Company has started work on State 1-E, C NW SW 21-19s-37e, and location has been made by Skelly Oil Company to drill L. Waller 1, C NW SW 9-20s-37e, an east offset to production.

Shell Petroleum Corporation has made location for State 1-T, C SE NE 34-20s-35e, about 7½ miles west of the north portion of the Eunice field. The Texas Company has moved in rig to start operations on V. M. Henderson 1, SE SE NE 30-21s-37e, about one mile west of nearest production in the North Eunice sandy-lime area. The latter is a short-term lease.

Two wells are in process of completion in the South Jal dolomite lime area. Continental Oil Company and The California Company's Sholes 1-A-24, C SE SE 24-25s-36e, repeatedly has been forced to resort to squeeze jobs in cementing off caverns below 2848 feet. Seven-inch pipe was cemented at 3152 feet, and rotary returns were lost again at 3220 feet, or 122 feet below sea level. Oil production is due near this level. The Texas Company et al's C. W. Shepherd 2-A, C SW NW 6-26s-37e, flowed 62 barrels fluid, including 58 percent bs&w on 24-hour gauge when tested through 2½-inch tubing at 3078 feet, or 102 feet below sea level. This well has not finished cleaning itself of drilling fluid.

Three completions credited to the Eunice lime area the past week were in the east area, and each offsets production. New locations include Geo. F. Getty Oil Company's State 1-D, C SE NE 32-20s-37e, situated more than one-half mile from production, and Humble Oil & Refining Company's State-Aggies 7, C NW NE 31-20s-37e. Both are in the north portion of the field.

Repollo Oil Company's Robt. Jamison 1, SW SE NE 21-24s-37e, offsetting an outpost producer in the north portion of the East Jal sandy-lime area, was relieved of lease storage congestion late last week after being forced to pinch the oil flow. This well was drilled to 3494 feet, or 267 feet sub sea, and gauged 320 barrels of oil in 12 hours. The Texas

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LEA COUNTY (Eunice Field)—		
Gulf Oil Corp., State-Bell 1-E, c nw nw 11-21s-36e	450	3855
State-Janda 3-C, c se sw 15-21s-36e	1500	3896
Humble, A. J. Adkins 7, c se nw 10-21s-36e	1200	3890
LEA COUNTY (South Eunice Field)—		
Skelly Oil Co., W. P. Sims 1, c ne ne 10-23s-37e	168	3653
LEA COUNTY (Monument Field)—		
Amerada Pet. Corp., C. H. Weir 7, c sw se 26-19s-36e	2500	3993
Empire O&R Co., D. L. Laughlin 2, c sw se 5-20s-37e	¶7 & 700	3890
Gulf Oil Corp., State-Graham 8-C, c nw se 25-19s-36e	760	3975
State-Kutter 2-B, c sw nw 28-19s-37e	400	3946
The Texas Co., J. W. Cooper 3, c sw ne 5-20s-37e	5000	3885

*Failures; †Junked; ¶Million cu. ft. gas.

Company's J. F. Black 1, a west offset, was drilling in salt below 2500 feet, according to late reports. Empire Oil & Refining Company's Sim Dabbs 1, C NW NW 23-25s-37e, 2½ miles east of Jal, and more than one mile from nearest oil production, is showing for a big gasser while drilling below 3240 feet, with an elevation of 3086 feet. This well flowed 20 barrels oil in 12 hours, with gas production rated at 2,000,000 feet daily at 3179 feet. First big gas was encountered at 3191 feet, and the flow stepped up to 37,000,000 feet daily at 3216 feet.

The Texas Company's J. D. Young 1, SE SE SE 5-24s-37e, semi-wildcat for the sandy-lime belt and about 1⅛ miles southwest of the company's small well on the Fanning tract, swabbed 54 barrels oil in 12 hours while preparing to resume drilling at 3602 feet.

SEEK REDUCTION

New Jersey farmers want relief from motor taxes

Trenton.—Reduction of gasoline and automotive taxes to a level comparable to levies assessed on other forms of property is urged in a statement issued by the New Jersey State Farm Bureau.

The motorist is paying heavier taxes than any other class of citizens, says the bureau, and there should be an adjustment of the tax load before any consideration is given to the question of adding additional burdens for any purpose.

In advocating an equalization of taxes, the bureau urges that other forms of taxable wealth should be taxed for relief or other general state purposes, pointing out that the motor vehicle levies in New Jersey last year amounted to more than $42,000,000.

CALL LOPEZ HEARING

Austin.—The Railroad Commission of Texas has called a hearing on the Lopez field in Webb County to be held in Austin on December 3.

While the commission will hear evidence upon which to base all rules for regulating operations in the field, the principal purpose of the hearing is to fix a spacing rule. More than 200 wells have been drilled in Lopez and through a gentleman's agreement, these have been spaced on 10-acre units. One operator has recently indicated that he plans to abandon this rule and space his wells closer together.

The hearing was called at the request of the remaining operators who desire to maintain the same spacing upon which the field has been developed.

Austin.—The state board for lease of prison lands last week awarded to Shell Petroleum Corporation a lease on 4300 acres of land in the J. W. Hall Survey, Leagues 10 and 11, Brazoria County. The land is part of the Ramsey State Prison Farm.

The bid was $451,500 which included the first year's rental of $21,500. In addition, Shell agreed to pay annual rentals of $5.00 per acre and ⅛ royalty.

As an over-riding royalty, the company agreed to sub-divide the lease into 160-acre units and to pay as much as $232.56 per acre on each sub-division out of oil produced therefrom. These payments are to cease when $1,000,000 has been paid in.

Pressure Reduced

SEMINOLE PROSPECT YIELDING 60 BARRELS OIL, LITTLE GAS

NORTH & WEST TEXAS

WEEKLY STAFF REPORT

Midland, Texas.—High pressure gas production developed by Amerada Petroleum Corporation et al's Averitt-Ohio 1-A, first oil producer for the Seminole geophysical prospect, Gaines County, was almost entirely eliminated after successfully installing a tubing packer at 5006 feet, with the hole bottomed in oil saturated lime at 5029 feet. The well flowed 30 barrels of 32 gravity oil in 12 hours after landing the packer, and the gas volume was lowered to less than 100,000 feet daily. Acid treating equipment was standing by at the well November 27 in preparation to treat the lower oil pay with 1000 gallons of solution.

Gas yield increased proportionately higher than the oil flow when Amerada Petroleum Corporation et al's S. J. Averitt-Ohio 1-A was treated with 2000 gallons of acid solution in a saturated lime section at 4996-5022 feet. The well gauged 90 barrels of 32 gravity oil and 36 barrels of acid water and drilling fluid during the first 18 hours after using acid, with gas volume rated at 11,700,000 feet daily. Previously the well had tested 2½ barrels oil per hour with 6,780,000 feet of gas. The hole was deepened early last week to 5029 feet, or 1711 feet below sea level, and increased saturation in the lime section was logged in the last four feet. Seven-inch pipe is cemented at 4812 feet. The exposed lime section amounts to 217 feet, and most of the gas is coming from the upper part.

Finish Fishing

The Texas Company succeeded in clearing up a fishing job on its Bob Slaughter 1, Southwestern Hockley County unitized block, and landed 8⅝-inch casing at 3058 feet, with the hole bottomed at 3065 feet. Drilling was resumed late last week. In Northeastern Yoakum County, three majors are reported to have tentatively agreed to donate acreage and a substantial cash bonus each towards the financing of a 5500-foot test to be started shortly, as some of the lease contracts expire next February.

Wildcats and Proven Fields Active

Field development and wildcat prospecting in West Texas shows no sign of abatement, although individual well allowables in the majority of the active areas have been cut to low levels. The district was credited with 37 completions the past week, including 33 producers. Winkler and Ward Counties have consistently received the bulk of the field work the past year, and they have sufficient proved locations to maintain their ranking positions.

Drilling of twin locations in the Estes section of the North Grand Falls district, Ward County, may become general practice among the owners of leases that are capable of producing from the 2500-foot and 2900-foot sandy-lime zones. F. H. E. Oil Company, Fort Worth, introduced the plan, but developed a junked hole at 2736 feet in attempting to complete L. Richter 3-A in the lower pay. The California Company's L. A. Adams 7, a twin location to Adams 3, is the latest addition to the dual well program. No water is encountered between the two oil zones, but conservation rules will not permit a well to produce from both, although it is permitted elsewhere in the state with a double allowable given a single well.

Deepest Active Test

Ohio Oil Company's Goode 1, Northeastern Terrell County wildcat, is the deepest active test in West Texas, having reached the 7022-foot level the past week, where operations were halted to cement leak in worn casing. It is attempting to drill to the Ordovician, having mudded off sweet gas production developed in Pennsylvanian at 5606-12 feet in February, 1931, by Transcontinental Oil Company, original owner. J. T. Stockwell, San Antonio, and others are reported to be negotiating a deal that would result in the deepening of W. A. Sudderth, J. H. Phelps and H. H. Sides' Bates-Phelps 1, W. G. Turley Survey, Block A-4, Terrell County, from 5635 feet to 6500 feet. No new hole has been made on this wildcat since tools were lost early in 1934.

Drilling a 500-foot test to the east of the North Cowden field, Ector County, to be completed by mid-April, 1937, is contemplated by Pat Hannaman and others. Owners of short-term leases in the area have agreed to give support to the project.

E. R. Bahan and R. R. Rhodes, Midland, have started their third wildcat test within the past 15 months in northwestern Reagan County after their two previous tests showed sulphur water in lime near the 3500-foot level. The new location is on the Texas Pacific Land Trust 160-acre site, C SE¼ section 37, block 37, T&P Ry. survey, T-5-S, and is contracted to go to 3600 feet.

SIR BASIL ZAHAROFF, Chateau Balincourt, France, builder of huge fortunes in oil, banking, arms and ships, died at the age of 86 years of heart attack November 27 in a hotel in Monte Carlo. Zaharoff was at one time a heavy investor in various Dutch oil companies.

Border Attracts

SEARCH NEAR OKLAHOMA LINE GROWING IN IMPORTANCE

Dallas, Texas.—The search for deep production in a group of North Texas Counties adjacent to the Oklahoma border and to the south is assuming important proportions. The Ordovician lime horizon, which is the equivalent of Oklahoma's Simpson and Wilcox zones, is the goal of the majority of the tests, although a few have the Trinity and Pennsylvanian series as their objectives.

Depth record for the district has been established by the north central Cooke County prospect of Sinclair Prairie Oil Company and Sunray Oil Company, A. C. McCall 2, W. H. White Survey, Sivells Bend area, in drilling to the 7100-foot level. Plans are to continue to 8000 feet if necessary to make a decisive test of the Ordovician, although the original contract was for a 6000-foot test. Sinclair Prairie Oil Company has a big investment in this block, as a large cash bonus was paid for one-half interest in the block assembled by Sunray Oil Company, and the former also acquired three-fourths of the royalty interest. Their first test on the McCall 55-acre tract was junked at 3232 feet last February, and a twin location was junked last June at 4729 feet. The third try for production has been drilled without mishap, with a 9⅝-inch pipe cemented at 6791 feet. The three tests have involved the drilling of more than 15,000 feet of hole, and in all probability will be increased to 16,000 feet.

Ordovician is Objective

Samuel S. Alexander, Fort Worth, with production in Young County, has contracted to start operations near the first of the coming year on a 6000-foot test to be located on a 3000-acre block in the Deleware Bend area, northeastern Cooke County. Location will be on the J. F. Marshall 2462½-acre tract, Aaron Burns Survey. A portion of this block extends into Western Grayson County. Seven majors hold lease protection in the immediate area, having made their purchases some months ago on the strength of favorable geophysical data. The Ordovician lime series is the objective of this proposed wildcat.

Appearance of salt water with a small trace of oil was credited to The Port Bolivar Company's O. G. Durning-Clarkston 1-A, Collin County wildcat, 2½ miles northeast of Anna, after bailing the fluid level in seven-inch pipe down to 4085 feet. It is bottomed in middle Pennsylvanian lime series at 4098 feet, with an elevation of 722 feet, and recorded favorable porosity below 4080 feet when an electrical formation surveying tool was used late in October. The company holds lease on several large blocks in the Anna area, and proposes to drill a 6000-foot test on one of the blocks.

Operations have been temporarily halted on the northeastern Collin County wildcat of E. A. Parkford, Los Angeles, et al on the Mrs. W. L. Fagg 38-acre tract, Jas. Rutherford Survey, about two miles northeast of Blue Ridge, after encountering more water sand in Paluxy zone when deepened from 2771 feet to 2784 feet. The owners cemented seven-inch pipe at 2655 feet, with an elevation of 626 feet, late in October, to make a production test at 2771 feet, but the well showed fresh water.

Drilling a 4500-foot test in Collin County, about three miles northeast of Celina, is scheduled to result from acreage purchase made by Byrd & Frost, Incorporated, Dallas. This concern acquired an undivided one-half interest in A. B. McElreath and F. W. Suggett's 9500-acre block, which centers upon the BBB&C Ry. Survey. The latter assembled the block before competitive bidding forced acreage prices in the general area to a comparatively high level for wildcat protection.

Approximately 625 feet of extremely hard chert formation has been penetrated by Olson Drilling Company, Jas. H. Gardner, Broswood Oil Company's D. R. Utiger 1, projected 6000-foot Ordovician lime test for the Preston Anticline section of Grayson County, about five miles northwest of Denison, in drilling to 1575 feet. This chert section was encountered at 950 feet, with an elevation of 722 feet, while the Oklahoma group's Southwestern Life Insurance Company 1, original test for the drilling block located 1¼ miles to the north, logged top of chert at 4470 feet, with an elevation of 767 feet, and base at 5315 feet. This unusual variation in the geological section is due to formations literally standing in an almost perpendicular position.

Northeast Wise County has come in for a share of the Ordovician lime prospecting. Texas Canadian Oil Corporation, Arp, Texas, a Canadian concern with production in the East Texas field, is starting a 2000-foot cable tool test to explore the Ellenberger zone on a 10,000-acre block that centers upon the Isham Epps Survey.

TEXAS PANHANDLE
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Empire O&R Co., Magnolia Pet. Co. 7-D	743	3060
J. M. Huber Pet. Co., S. B. Burnett 4-R	¶6½	3115
S. B. Burnett 5-R	¶29.3	2720
GRAY COUNTY—		
Cambrian Oil Co., G. Cole 3	465	3279
Empire O&R Co., L. H. Cunningham 10	728	3300
Stanolind ,Cobb 11-B	425	3328
HUTCHINSON COUNTY—		
J. E. Crosbie, Inc., H. W. Pitts 14	771	2994
Danciger Oil & Ref., Inc., Hodges 1	18	3100
Drilling & Exploration Co., Inc., W. B. Haile 6	466	3062
J. M. Huber Pet. Co., Herring 2	†	2128
Martex Pet. Co., H. C. Pitcher 2	483	3167
Phillips Pet. Co., J. J. Perkins 9	272	3019
E. L. Snow 2	¶21.9	2450
Stanolind, H. C. Pitcher 6-A	205	3104
MOORE COUNTY—		
Phillips Pet. Co., Jones Moore "66" 3	¶41.4	3525
Shamrock O&G Co., C. R. Jones 1-B	¶55.8	3491
C. R. Jones 1-C	¶36.2	3495
WHEELER COUNTY—		
Ben G. Barnett et al, Stewart 4	¶2½ & 128	2125
C. A. Lupton et al, Stewart 2	¶9.6 & 105	2145

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Fuhrman Field)—		
R. H. Henderson et al, J. E. Parker-Shell 1	96	4555
CRANE COUNTY (McCamey Field)—		
Homestead O&G Co., E. S. Hughes 1	242	2097
CRANE COUNTY (Wildcat)—		
Sawyer Drlg. Co., M. B. McKnight 1	*	1005
ECTOR COUNTY (Goldsmith Field)—		
Gulf Oil Corp., Goldsmith-Scharbauer 9	¶30 & 731	4212
GARZA COUNTY—		
Gar-Tex Oil Co., Post-U. U. Co. 2	137	2822
HOWARD COUNTY—		
Conoco-Group 1, Oil Corp., Settles 17-S	273	1308
Settles 18-S	485	1273
Schermerhorn Oil Co., T. P. Land Trust 7	*	2414
JONES COUNTY—		
Sandy Ridge Oil Co., M. E. Connell 1	120	1969
PECOS COUNTY (Masterson Field)—		
Aero Gas Refining Co., Inc., D. B. Gregg 4	505	1501
M. H. Black et al, D. B. Gregg 3	*	1505
PECOS COUNTY (P. V. Pool)—		
A. E. Lynch & Lyman, Iowa Realty Trust 1	¶6	1548
PECOS COUNTY (Horborg Field)—		
Stanolind-Conoco, Tippett 10-C	196	490
PECOS COUNTY (Yates Field)—		
Ohio Oil Co., I. G. Yates 48-A	51,807	1380
UPTON COUNTY (McCamey Field)—		
J. W. Ellis et al, J. W. Robbins 5-B	896	2132
F. W. Merrick, Inc., Cordova Union 2	235	2076
G. M. Smith & Cravens, A. Reese-Conoco 6	892	2352
TP Coal & Oil Co., J. F. Lane 15-C	1103	2271
WARD COUNTY—		
Empire O&R Co., J. Sealy-Smith 3	140	3094
FHE Oil Co., L. Richter 3-A	†	2736
A. E. Lynch et al, Himmel 3	471	2385
Hal C. Peck et al, Monroe 5	341	2317
Richardson Oils, Inc., J. H. Hathaway 12,	2701	2649
S. A. Thompson et al, W. D. Johnson-Sun 11-A	1103	2522
L. D. Thorn, Tr., et al, E. Beatty 4	430	2520
WINKLER COUNTY (Brown-Altman Field)—		
S. Caprito et al, Roy Clapp 1	8	3131
Eastland Oil Co., Roy Clapp-Pure 3	1597	3167
Magnolia, N. R. Colby 5	442	3130
WINKER COUNTY (Emperor Field)—		
Bert Fields, Inc., E. W. Cowden-Pure 1-C	256	3000
WINKLER COUNTY (Henderson Field)—		
Joe C. Maxwell, Inc., Daugherty 3	682	3088
Uscan Oil Co.-R. H. Henderson, J. B. Walton-Humble 1-B	296	3045
WINKLER COUNTY (Keystone Field)—		
Sun Oil Co., J. B. Walton 2	229	3370
WINKLER COUNTY (Sayre Field)—		
Humble, N. R. Colby 3-C	1315	3050
Illnois Oil Co., Abilene Central Bank-Conoco 4-A	1924	3130
Mid-Continent Pet. Corp., Walton 8	1376	2950
Shell, Ida Hendrick 2-L	487	3045
WINKLER COUNTY (Scarborough Field)—		
Richardson Oils, Inc., Scarborough-Empire 3	561	**2993**

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls	Depth
ARCHER COUNTY—		
Archer Drl. Co., L. F. Wilson 1, sec 32	*	3002
L. T. Burns et al, C. L. Abercrombie 3	15	1511
L. M. Hayter 1, sec 2423	*	1487
D. W. Jackson 1	*	1380
Bert Lowery 2	5	1510
J. R. Parkey 1, blk 38	*	1551
C. B. Christie et al, L. F. Wilson 1, sec 107	*	1500
Continental Oil Co., S. M. Gose 57	16	1613
Russell & Wilson, H. O. Prideaux 21	10	678
Solo Oil Co. & J. W. Akin, G. B. Hamilton 1-A, blk 1	*	1302
E. J. Stump et al, T. B. Wilson 10-B, sec 1	15	1575
J. H. White & King Oil Co., K. & K. 13-A, blk 42	*	654
BAYLOR COUNTY		
Pet. Producers Co., Portwood 38-B, sec 1281	*	1415
CLAY COUNTY—		
Metzner & Burns, Thornberry 13, blk 11	10	328
Taylor & Rich, C. T. Taylor 1	*	400
COOKE COUNTY—		
Anderson-Kerr Pet. Co., Ed Wilson 1-A	10	2084
Denver Prod. & Ref. Co., Ed Wilson 9	210	1981
Long & Wolfe, S. B. Hopkins 1	*	2500
Ripps & Ungerman, W. L. Johnson 8	248	1917
Whitfield et al, F. C. Owen 2	20	1985
JACK COUNTY—		
Gwynn & Overby, B. F. Rankin 4	591	3011
W. H. Hammon et al, Geo. E. Evett 1	*	2986
Harper Pet. Corp., G. F. Brown 1	*	2100
Hill & Hill, R. H. Eatherly 1	404	2981
Thos. D. Humphrey, B. F. Rankin 5	489	2991
Geo. B. Ray et al, L. J. Hester 4	10	3008
E. B. Sewell et al, D. R. Sewell 6, blk 1	1	350
Martin Yell et al, Peterson 4, blk 2	5	364
MONTAGUE COUNTY—		
Benton & Holmes, C. L. Davenport 15-B	20	1497
Continental Oil Co., A. B. Hinton 5	52	776
Lesh & McCall, R. W. Cunningham 9-A	32	943
The Texas Co., A. B. Hinton 5	60	779
WICHITA COUNTY—		
Coleman & Coppock, G. R. Hodge 6, blk 39	12	805
Continental Oil Co., S. B. Burnett 4-A	*	1950
Waggoner Bros. 14-C	32	1758
Waggoner Bros. 15-C	20	1764
Forbess & Golden, C. A. Mertins 2	5	714
J. E. Keller et al, Waggoner Bros. 3, sec 11	*	550
King Oil Co., Waggoner Est. 8-J	96	1462
W. B. Omohundro et al, W. A. Brown 1, blk 311	*	2050
Mrs. Jessie L. Pyle et al, Munger 5, blk 30	10	1095
Sussex Oil Corp., L. F. Patten 1, blk 6	51	1873
L. F. Patten 2, blk 6	140	1870
WILBARGER COUNTY—		
Phillips Pet. Co., Waggoner Est. 1-MMM, sec 42	55	2595
YOUNG COUNTY—		
Paul Atchley et al, S. Groves 1, sec 161	*	1080
Bohner & Gilmore, Prideaux 4-A	*	604
L. T. Burns et al, W. A. Rushing 8, sec 3401	20	907
Cable Oil Co. et al, Prideaux Bros. 2	20	589
Art Cox-Joe Gross et al, J. T. Rogers 1	20	4292
Fain-McGaha Oil Corp., G. P. Stewart 1-B, blk 6	*	601
Fresno Oil Co., J. W. Cox 7 blk 18	3	592
Kimmell, Lee & Co., H. O. Prideaux 1	15	663
E. R. Perkins et al, W. H. Clarida 3	*	610
E. R. Riggs Est. et al, J. M. Kirkland 13, sec 2249	15	711
Swink & Skinner, Mrs. A. E. Logan 2, sec 2251	*	681
United Prod. Co., J. F. Larrimore 7, sec 2246	*	720
White & Duncan, Prideaux Bros. 1-A	90	754

*Failures; †Junked; ¶Million cu. ft. gas.

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Trinity Test Dry

PLUGGING ORDERS ISSUED FOR LAMAR WILDCAT

WEEKLY STAFF REPORT

Mount Pleasant, Texas.—Plugging orders have been issued for James A. Forrester, Kansas City, and associates' J. F. Woodward 1, located near Minter, Lamar County, after drilling to 5203 feet. It is believed to have drilled through the Trinity series to the upper portion of the Paleozoic. This wildcat was idle several months last summer awaiting casing to make a production test in basal Trinity at 5129 feet after cores showed some evidence of oil stain. The well did not produce oil or gas when tested through casing.

Humble Oil & Refining Company's O. L. J. Easter 1, eastern Rains County Trinity test, was scheduled to resume drilling late last week after cementing a protection string of 9⅝-inch pipe on top of Georgetown lime at 5059 feet. It is contracted to go to 7600 feet.

Four rigs in service in the Sulphur Bluff field, Hopkins County, include two on the discovery lease of D. S. Hager, W. P. Luse and Russ Petroleum Company. The partnership's J. E. Worsham 5 logged top of Paluxy pay at 4432 feet, and was coring at 4450 feet. Worsham 7, two locations west of production, was drilling near the 4300-foot level. Hager and Luse's J. G. Reynolds 1, southeast corner of a 200-acre lease, and west offset to the latter, resumed drilling after cementing surface pipe. Empire Oil & Refining Company has started work on its J. E. Worsham 1, located in northeast corner of a 150-acre lease and offseting production.

About six miles of six-inch welded line has been completed by American Liberty Pipe Line Company in carrying out its plans to link the Sulphur Bluff field with its gathering system in the Talco field. Pending the completion of this line about December 15, American Liberty Pipe Line Company is diverting its crude purchases from the Sulphur Bluff field discovery property to a 25,000-barrel tank. The company is negotiating for a contract to market its crude runs from the two fields with Eugene Constantin, Jr., and associates, who are building a crude skimming plant near Talco.

Talco field added five flowing and pumping wells the past week. Current field activity lists 33 tests drilling or in process of completion, with derricks and rigs in place on 10 additional sites. Field work is likely to show further gains, as there is considerable competition for this heavy gravity crude. Magnolia Petroleum Company's K. Mainard 2, located in the east extension area, gauged 256 barrels oil on potential test through one-quarter-inch choke from Paluxy at 4249-4315 feet. Back pressure on tubing during this test averaged 45 pounds. Closed in pressure on casing and tubing is 130 pounds.

TEST FOR MEXIA

Grider to explore Trinity underlying Pure's lease

Mexia, Texas.—Exploration of the Trinity horizon underlying the Mexia field, original Woodbine sand area for East Texas, is slated to be renewed. A. H. Grider, Mexia, and others have contracted to drill a 6100-foot test on a 10-acre site assigned by Pure Oil Company from the center of its W. B. Kendrick 96-acre producing lease, about three miles west of Mexia and 1¾ miles south of previous tests in the Trinity series. Owners of Woodbine sand producers in the field are contributing towards the cost of the new deep project.

Several of the previous attempts to develop production from the Trinity have given encouragement for commercial wells, but mishaps occurred in nearly every instance at the critical stage of testing. E. L. Smith Oil Company et al's Jake Steubenrauch 1, first deep project, made 5,000,000 feet of wet gas and spray of high gravity oil in May, 1927, at 5732 feet, thereby strengthening the production outlook, but the hole was junked.

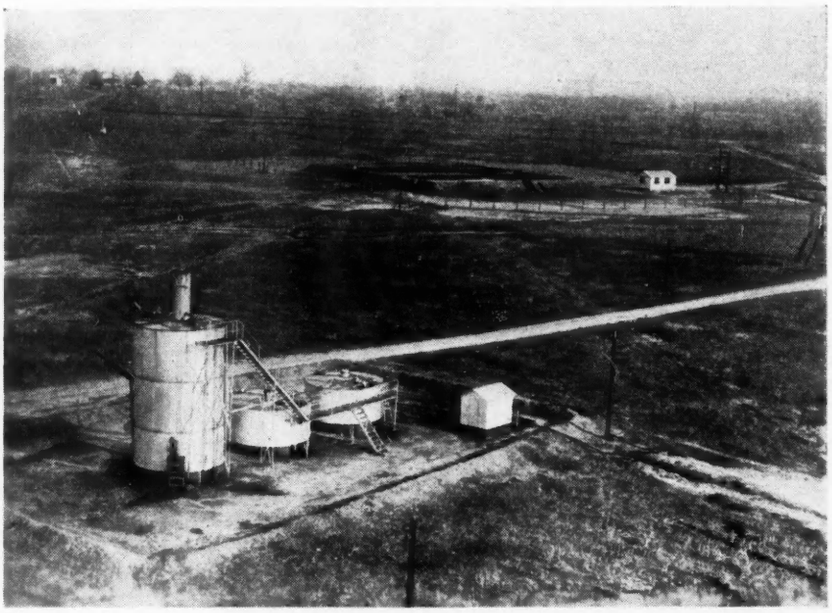
A. W. Phillips and others have rigged up rotary to drill a Woodbine test on a secondary fault in Limestone County about four miles northeast of Groesbeck and southeast of Mexia. Location is on the E. M. Speight 136½-acre lease, M. Herrin and Pedro Varella Surveys.

Freestone County is to receive a new wildcat test to the Woodbine zone, as location has been made by R. L. Wheelock, J. L. Collins et al on W. R. Boyd, Jr.'s 410½-acre tract, F. P. Cabler Survey, about 3½ miles southwest of Fairfield. Boyd is executive vice president of the American Petroleum Institute. The independents have a block of about 9000 acres, and sub-surface geology was worked by Paul L. Applin, Fort Worth, consulting geologist. Roger Steward and Velvet Oil Company's E. H. Beauchamp 1, located about four miles northwest of Fairfield, encountered salt water in Woodbine when a formation tester was used at 4134-4138 feet, with an elevation of 374 feet. It will be carried deeper into the Woodbine section for geological information.

The upper section of the Woodbine failed to produce at 4940 feet in Cosden Oil Corporation's Mrs. E. P. Miller 1, second test for the company's Frankston block in Southeastern Henderson County. It is about 11/5 miles west of Hurt & Miller 1, which was abandoned in November, 1934, after logging Woodbine section at 4849-5377 feet, with an elevation of 412 feet. The new test checked slightly higher on structure.

J. V. McMahon, Tulsa, McIntyre, et al, have rigged up to drill J. B. Stevens 1, situated on 777½-acre tract, J. Muechen Survey, about eight miles southwest of Mount Pleasant and in the southwestern part of Titus County. It is scheduled to be a Woodbine test.

In Upshur County, Bell Oils, Incorpo-



Tank battery in Salt Flat field, Caldwell County. Water disposal tank in the background. Sulphur water from wells are run into this field reservoir, then run through a pipe line to the main reservoirs for disposal.

rated, and Bennett Petroleum Corporation have taken over a drilling block originally credited to B. L. Watson, et al, and are making a Woodbine test on the W. O. Irvin 249-acre tract, D. R. Cannon Survey, offsetting a 3891-foot failure drilled in July, 1934, by R. S. Randerson and B. L. Watson. The new test was due to reach the Woodbine zone late last week, having logged top of Pecan chalk at 2345 feet, with an elevation of 241 feet.

EAST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls	Depth
JOINER AREA—		
Arkansas Fuel Oil Co., E. M. Beall 12 (41½-ac)	9400	3681
W. F. Brightwell-Petroleum P. L. & Storage Co., Crook 1	270	3613
Ebony Oil Co., D. F. Deason 8 (25-ac)	4000	3703
Genro Dr. Co. & Roosth, Pace-Bateman 5 (38-ac)	2400	3783
Humble, W. L. Price 54 (452-ac)	8000	3759
Normandie Oil Corp., C. L. Graham 3-C	Junked	3619
Ohio Oil Co., T. O. Warren 8 (65.69-ac)	3600	3655
Ortiz Oil Co., Lum Tolliver 10 (16.12-ac)	1500	3750
Sinclair Prairie, A. S. Jarvis 12-B (116-ac)	4600	3710
Stanolind, J. W. Ashby 3 (107.6-ac)	600	3698
Stanolind-Pure, W. H. Siler 63 (983.53-ac)	3500	3663
W. H. Siler 69 (983.53-ac)	1500	3614
Standard Oil Co. (Kan.), J. E. Wheelis 7 (40-ac)	6800	3813
Sun Oil Co., J. P. Seale 4 (143-ac)	750	3698
L. Tatum et al, W. P. Moore 1 (1-ac)	4500	3645
The Texas Co., Mae Blackwell 23 (103.4-ac)	3000	3714
Texas Gulf Pet. Co., Hodnett-Melton 18 (134.84-ac)	2000	3691
KILGORE AREA—		
Bay Oil Corp., J. S. Powers 3 (24-ac)	1500	3823
J. G. Beard et al, J. S. Elder 5 (27.16-ac)	72	3545
Gulf Oil Corp., S. Hilburn 79 (172.3-ac)	7600	3549
Humble, L. D. Crim 176 (914.51-ac)	7000	3619
B. F. Laird 18-A (100-ac)	8500	3601
Roger Lacy et al, J. F. Reynolds 9 (22.89-ac)	3600	3564
Sinclair Prairie, J. E. Lawther 22 (317.68-ac)	3000	3591
A. A. Lockhart 23 (133.12-ac)	8000	3679
Sun Oil Co., W. B. Walker 3 (80-ac)	750	3553
Sun-Seaboard Oil Corp., M. T. Cole 48 (266.17-ac)	5300	3539
LONGVIEW AREA—		
Atlantic Ref. Co.-Sun Oil Co., M. Hays 71 (448-ac)	10,400	3561
J. D. Nantz et al, Bradshaw 1	*	3727
P. F. Rutledge-C. W. Boller, P. Todd 15 (155-ac)	1000	3709
Selby O&G Co.-Lewis Prod. Co., Snavely 13 (118.3-ac)	5000	3579
Snavely 14-C (118.3-ac)	4800	3587
Shell Pet. Corp., C. C. Landers 21 (132.99-ac)	4500	3660
Stanolind, J. D. Davis 15-A (80.68-ac)	7500	3606
Sun Oil Co.-Seaboard Oil Corp., J. M. Haynes 35 (203-ac)	9500	3661
Jim A. Woods-L. & G. Oil Co., O. J. Phillips 2-B	120	3706
J. D. Wrather et al, J. H. Alexander 1	*	3618
J. W. Alexander 1	*	3646
ANDERSON COUNTY (Long Lake Field)—		
Byrd & Frost, Inc., I&GN Ry. Co. 1 (84-ac)	600	5343
TITUS COUNTY (Talco Field)—		
Hinton, et al, Wilson 2 (119.51-ac)	700	4263
Humble, J. M. Belcher 1 (166.37-ac)	131	4401
Lucy Blackburn 4	265	4299
Magnolia, K. Mainard 2 (130¾-ac)	600	4315
Alex McCutchin et al, Talco Townsite 1, C lot 1, blk 37	356	4330
LAMAR COUNTY—		
Forrester et al, Woodward 1	*	5203
RED RIVER COUNTY—		
T. J. Farrington (Garson & Siegel) W. T. Morris 1	*	1227

*Failures; †Junked; ¶Million cu. ft. gas.

Nueces Test Showing

FIRST RESULTS OF PLAY SOUTH OF CORPUS CHRISTI

WEEKLY STAFF REPORT

Corpus Christi.—A hot wildcatting campaign just south of Corpus Christi, Nueces County, which was commenced several months ago, reached its climax last week when one of the tests showing sufficiently on a drill-stem test to assure some sort of producer. Another wildcat had passed through a thick gas sand which is supposed to have shown some saturation, while the third was drilling close to its 7000-foot contract.

There are several more wildcats planned for the immediate future in the same sector of Nueces County, all to test to 7000 feet if production is not found shallower. Considerable geophysical work has been done in this area during the past several months and several interesting structural features have been mapped.

Cosner & Cosner's Stockton 1, SW NE Section 25, 12 miles southwest of Corpus Christi, topped a sand at 4720 feet. A drill-stem test at 4720-26 feet developed 700 feet of oil, 500 feet of mud and water and no pressure in 10 minutes through ¼-inch chokes, top and bottom. A second drill-stem test was attempted, but the tool slipped to bottom with 170 feet of mud, cut with oil and salt water, being recovered. A 3-foot core was taken and a third drill-stem test made which recovered 650 feet of salt water with some mud and oil. The salt water is believed to immediately overly the oil sand, as is the case in several areas through this sector of the Gulf Coast. The well is being drilled deeper, but undoubtedly will attempt a completion at this level if no sands are found deeper.

G. M. Richardson et al's R. S. Carter 1, Section 8, 8 miles south of Corpus Christi, was drilling at 5590 feet after finding a sand section at 3895 feet. It showed gas to 3900 feet, shale 3900-02 feet and sand 3902-17 feet with oil odor. No drill-stem test was run. I. J Allen and Seaboard Oil Corporation's J. O. Chapman 1, Section 80, 17 miles southwest of Corpus Christi, is drilling at 6275 feet. It has had a number of sands, but all that have been tested have shown salt water.

Test Delayed

W. L. Hinds and Phillips Petroleum Corporation's efforts to extend the Clara Driscoll field, also Nueces County, to the northwest and open a new deep sand, were delayed when swab was lost in Sevier 1-A, Section 60. The well perforated casing in a portion of the sand at 5710-30 feet and was in final stages of completion when the accident occurred. It was clearing hole at last reports.

*See page 62.

Richardson Petroleum Corporation's M. Harrell 2*, 2-mile northeast extension to oil production in the 6300-foot sand of the Saxet field, Nueces County, has been gauged, the well flowing 107 barrels in 24 hours through 9/64-inch choke and showing tubing pressure of 1240 pounds and casing pressure of 2120 pounds. It is producing from perforations at 6236-35 feet. It is the second oil well in this horizon.

Contract has been let and rig is to be moved in immediately for a directional relief well to be drilled in an effort to kill the wild flow of both oil and gas coming from the burning crater in Texon Drilling Company's Sevier 1 (2), Nueces County. The well blew out at 6832 feet November 19, cratered, caught fire and has been burning ever since.

Premont Field, Jim Wells County, gives promise of being an important producing area as a result of showings in Tom Graham's William Singer 1, north offset to Bennett 1, which recently extended the field 2 miles to the west. The Singer well cored the 2350-foot sand found in the offset well and showed for a producer. It was carried ahead, picking up a sand at 3132 feet which showed gas to 3163 feet. Oil sand was encountered between 3163-67 feet, shale 3167-70 feet, sand and shale streaks, all saturated to 3183 feet. Two drill stem tests failed and the well is being carried ahead. Bennett 1, south offset, made considerable fresh water with the oil and has been reworked, cementing lower perforations, and recompleting for a good oil producer. It is now believed that this is a fresh water sand and that the oil is coming up through a fault plane and riding atop the water.

Jim Wells Deep Test

John F. Camp's deep test in the Bentonville district of Jim Wells County is making hole below 5732 feet after having salt water at 5415-20 feet. It is W. E. Pope 1-B. The test likely will be carried considerably deeper if it does not encounter production.

Tidewater Oil Company's E. G. Landgrof 1, Collyer survey, in the extreme eastern portion of Refugio County, is drilling below 7180 feet in hard sand. This deep contract is on the basis of considerable geophysical work in the area.

San Patricio County's deep play near Gregory so far has failed to de-

velop production. Eleanor Oil Company's Kline 1, which drilled to about 6800 feet, lost drill stem, attempted to complete in sands around 6300 feet, but failed to develop anything more than a little gas and salt water and has been shut down. Hooper & Rutherford, Inc.'s Wallis, an east offset, is coring around 6300 feet for the same sand which indicated possible production in the Kline well. Several miles to the north and in block 13, Sargent survey, Texon Drilling Company is preparing to move in for J. H. Harvey 1. Atlantic Refining Company is rigging up for McCampbell Ranch 1-C, fourth deep test in the McCampbell field on the San Patricio-Aransas County line.

Magnolia Petroleum Company's Willie Beck 1, T. & N. O. No. 1, four miles northwest of Telferner in Victoria County, is drilling below 3590 feet. This well has attracted considerable attention since its showing on a drill-stem test at 3509-12 feet when it developed 200 pounds pressure along with 120 feet of oil and a like amount of salt water in 7 minutes. In the same county, Plymouth Oil Company abandoned one of its deep tests, the well being R. H. Welder 1, Section 15, 9 miles north of Nursery. J. J. Welder 1, in the same general area, is drilling at 4831 feet in sidetracked hole after plugging back from 6648 feet.

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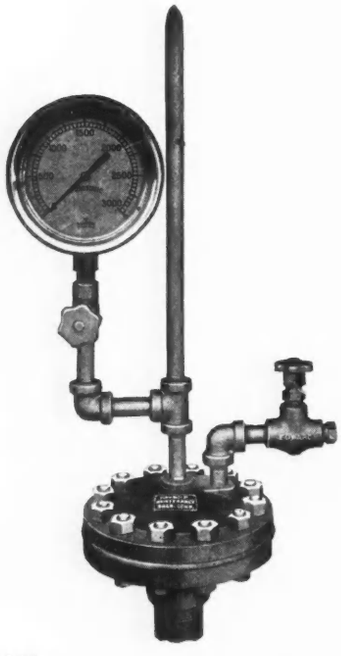

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To Test Wildcat

EDWARDS LIME MAY YIELD OIL NEAR SMITHVILLE

San Antonio.—What may result in one of the most important strikes in the history of the Balcones Fault Zone appears possible with casing being set in Paul Teas' Clement Vinklarek 1, on the Fayette-Bastrop County line and 10 miles south of Smithville. The well topped the Edwards lime at 7122 feet and went to 7142 feet. There was poor recovery on the first eight feet of core, but what was obtained showed a little oil. The remainder was dry. An electric formation tester was run, following which the pipe was landed on bottom.

There are differences of opinion as to whether or not the well will produce, but the showing is sufficiently promising to suggest that deep Edwards lime production is possible in South Texas. If it is a producer, the territory may look to a heavy and very expensive development campaign. A number of companies hold protection against the test.

It is located 2972 feet from the west line and 330 feet from the north line of a 100-acre tract in the S. Millet League.

This well was drilled on a different theory than most of the Edwards lime tests in the fault country. It is the contention that the head of the fault decreases as the formation dips. In the shallower areas, the wells are started considerably west and on the down dip side of the fault, which is cut a short distance above the top of the lime. This well, on the contrary, started just east and on the upthrow side of the fault, running high from the very beginning.

It has an elevation of 443 feet, derrick floor. The various formations were topped at the following points; Carrizo, 1250 feet; Wilcox, 1320 feet, Taylor, 5160 feet; Austin chalk, 5980-6000 feet; Eagleford, 6820 feet; Del Rio, 6715 feet; Georgetown, 6915 feet.

Another deep wildcat being closely watched is Red Bank Oil Company's Nellie Gramm 1, in the Chreisman area at Burleson County. The well topped the Georgetown lime at 5953 feet and was drilling below 6062 feet in lime at last reports. It expects the Edwards lime within a few feet.

Atascosa County apparently has its first serpentine field in Helvetia Oil Company's Susie Pratt 2, which is reaming to set casing atop a showing of oil. The well, located in the M. de la Garza survey, is ½ mile northwest of Anchorage and about the same distance southeast of the first well. It topped the Serpentine at 3085 feet, had a section of broken formation with oil showing from 3224-66 feet and went out of the serpentine at 3428 feet, the top of the Austin chalk.

South Darst Creek Field, Guadalupe County, has been defined in two directions. R. B. Byrd's Mrs. T. W. Jahns 1, just southeast of production, topped the Austin chalk at 2444 feet and had found no saturation after drilling 60 feet of the formation. W. J. Dobbs' Gus Jahns 1, ½ mile northeast of the field, topped the chalk at 2361 feet, drilled in 100 feet without finding production, and has been abandoned.

TEXAS LEASE BIDS

Austin.—State Land Commissioner J. H. Walker last week received bids on 81 tracts of submerged lands in Aransas, Copano and St. Charles Bays, opposite the town of Lamar in Nueces County.

The tracts vary in size from 9 to 320 acres. Because of the complexity of bids received, some time will be required to determine which is the higher.

SOUTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls	Depth
ATASCOSA COUNTY—		
Rogers & Rogers B. McLain 1, 150 ft nl, 450 ft wl, B. McLain 84.8-ac tr. V. Trevino sur No. 79, s Somerset	75	2013
BEE COUNTY—		
Elwood & Young H. G. Barnett Hrs 3, John Pace sur (Cosden)	¶5	4050
BEXAR COUNTY—		
R. O. Clark C. F. Krause 1, 30-ac tr 150 ft fr se & swl, S. McCullough sur No. 10, ½ mi w Von Ormy field	¶½	710
Mayers & Smith H. E. Bass et ux 1-A, 2000 ft ne/cor, 200 ft. sel of 73.5-ac tr, F. A. Ruiz sur No. 47 2 mi se Von Ormy	*	1363
Raymond Pulliam E. J. Lamm 2, 2019 ft sw of San Antonio river, 2465 ft sel of 914-ac tr, E. Froboese sur	*	2957
CALHOUN COUNTY—		
Portilla Dr Co. P. H. Welder 2, Agaton Sisneros sur (Heyser)	850	5502
P. H. Welder 5, Agaton Sisneros sur (Heyser)	500	5482
DUVAL COUNTY—		
Mills Bennett Prod Co. W. R. Peters 4, sec 178 (Peters)	240	2605
Bridwell Oil Co. Wm. Hubberd 5-A, sur 71 (Loma Novia)	50	2868
E. Robles 2, sur 68 (Hoffman)	115	2822

Company, Well and Location	Init. Prod. Bbls.	Depth
Cox & Hamon W. R. Peters 19, sec 322 (Lopez)	500	2121
W. R. Peters 25, sec 322 (Lopez)	500	2146
W. R. Peters 27, sur 322 (Lopez)	500	2130
W. R. Peters 30, sur 322 (Lopez)	500	2145
F. A. Gillespie & Sons Edwardo Perez et al 1, 330 ft wl 971.6 ft sl of 160-ac tr. San Diego de Ariba Gr, 3 mi w San Diego	*	5681
W. L. Goldstone et al J. F. Welder hrs 1, 330 ft sl, 330 ft wl, s¼ sur 217, 2 mi e of n end of Loma Novia field	*	3018
Humble O & R Co. A. H. Badgley 10, sur 307 (Seven Sisters)	350	2505
A. H. Badgley 12, sur 307 (Seven Sisters)	400	2498
M. C. Hubberd 62-B, sur 72 (Loma Novia)	300	2776
T. D. Smith 32, sur 382 (Seven Sisters)	700	2472
McCandless & Cloyes J. D. Sutherland 1, 330 ft sl, 4818 ft el of sec 126, 8000 ft e Sarnosa field	*	2941
Magnolia Petr. Co. Servando Benavides 16, blk 14 (Cole)	125	2845
Mrs. Emma Herbst 5, sur 70 (Loma Novia)	100	2729
M. G. Peal 22, sec 383 (Lopez)	175	2118
M. G. Peal 25, sec 383 (Lopez)	50	2116
Parr Oil Corp. Glover et al 3, sec 44, (Gov't Wells)	40	2360
Rosan Oil Co. M. C. Hubberd 6-A, sec 71 (Loma Novia)	800	2812
Shell Petr. Corp. Bishop Cattle Co. 9, sur 59 (Loma Novia)	225	2577
Sun Oil Co. M. C. Hubberd 1-B, sur 82 (Loma Novia)	300	2805
Wellington Oil Co. J. F. Welder hrs 24, sur 383 (Seven Sisters)	700	2457
Westheimer & Daube Z. Campos 18, sur 224 (Seven Sisters)	¶10 & 30	2779
McMULLEN COUNTY—		
Conservative Oil Co. J. Stitz 12, James Garner sur (Calliham)	20	708
NUECES COUNTY—		
R. B. Bryant, F. J. Smith 2, GS & SF sur No. 315 (Saxet)	1000	4572
Conroe Dr. Co., M. McBride 5, Sh G, McBride sub (Saxet Heights)	250	4098
Great States & Violet Oil Corps., McGregor-Belk 6, sec 311 (Saxet)	800	5824
C. F. McGrew, C. G. Kelly 3, Villareal Gr (Saxet Heights)	250	4090
Pan American Prod. Co., R. Morgan 4-D, sec 405 (Saxet)	500	4103
Port Oil & Gas Co., Corpus Christi College 2, Villareal Gr (Saxet Heights)	450	4090
Richardson Pet. Co., Maggie Harrell 2, blk 32 & 33, Sheppard Farm lots (Saxet) Sd/td 6344	500	6356
Southern Minerals Corp., Anton Ocker 8, Page Lands sur No. 418 (Saxet)	350	4856
Texon Dr. Co., J. J. Scoggins 4, sec 315 (Saxet)	600	4577
W. A. R. Oil Co., Mrs. B. Buckholt 3, Sh 4, Kinney sur, sec 316 (Saxet)	750	4452
REFUGIO COUNTY—		
Houston Oil Co., W. J. Heard 20, Refugio Town Tr (Refugio)	¶20	4918
SAN PATRICIO COUNTY—		
Atlantic Ref. Co., G. W. Pullin 2, sec 1, Second Addn Taft Farm Lands (Taft)	750	4931
Humble O & R Co., J. W. Mayo 12, Ottman sur (Taft)	850	3980
STARR COUNTY—		
Barbara Oil Co., W. M. Pardue 1, 4030 ft swl, 4038 ft nwl 1168-ac tr, El Javali Gr	*	2660
VICTORIA COUNTY—		
American Liberty Oil Co., A. Cortez 2, Brownson sur (Placedo)	250	4767
Plymouth Oil Co., R. H. Welder 1, 2332 ft wl, 3265 ft sl 6371-ac tr, FH & MG Ry sur No. 15	*	6181
WEBB COUNTY—		
Smith & Hamill, S. Benavides 13, blk 313, Arispe Gr (Cole)	750	2918
ZAPATA COUNTY—		
Gilcrease Oil Co., A. D. Haynes 17-B, blk 4, Haynes sub, Comitas Gr (Comitas)	5	1013
A. D. Haynes 14-C, blk 8, Haynes sub, Comitas Gr (Comitas)	40	1084
A. D. Haynes 15-C, blk 8, Haynes sub, Comitas Gr (Comitas)	25	953
A. D. Haynes 16-C, blk 8, Haynes sub, Comitas Gr (Comitas)	*	949
Glenn Harroun, M. Garza Est 4, blk 10, C. A. Douglas sub, Comitas Gr (Escobas)	75	1267
Upchurch & McKay, A. D. Haynes 14, Comitas Gr (Comitas)	51	1039
The Zapata Co., M. Garza Est 4, blk 20, Douglas sub, Comitas Gr (Escobas)	125	1185

*Failures; †Junked; ¶Million cu. ft. gas.

EXTENSION LIKELY

Plummer flank test may prove an oil producer

Beeville.—Continued efforts to develop oil production on the flank of the Plummer gas field, Bee County, apparently are meeting with success. W. C. McBride, Inc.'s Theo. Plummer 1, a short distance east of the gassers, was in final stages of completion at 3042 feet late in the week. It topped Pettus sand at 3031 feet, the upper portion showing for a dry gasser.

A drill stem test at 3036-41 feet developed 450 pounds pressure in 5 minutes through 3/8-inch chokes top and bottom. On the test, 60 feet of oil and mud and 51 feet of brackish water were recovered. Casing was set to 3039 feet.

Miller-Donzis Oil Corporation's A. M. Holzmark 1-B, May survey, 1227 feet west of the discovery Pettus sand test in the Foley area, is coring ahead below 3588 feet after encountering Government Wells sand section at 3570-88 feet, of which several feet was sand and the remainder streaks of shale with a little sand. It showed a little oil and gas. This is 175 feet below the Hockleyensis sand, one producing horizon in the field and about 400 feet above the Petus sand, or other producing horizon in the same field.

Sun Oil Company's Lena Fromme 1, wildcat 10 miles north of Goliad in

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How will the Sievers Reamer help in *your well* is a perfectly logical question and here are 6 perfectly logical answers—

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2. Because of the angle at which the cutters are set in the reamer body, the formation is sheared with a natural downward slicing action, permitting a *full gauge* hole to be reamed, with less effort, with less weight on the drilling string and in less time than with conventional types of reamers.

3. Because of the downward shearing action of the cutters, the natural wear and thrust on cutter pins, reamer body and moving parts is held to an absolute minimum. This means less shut-down time for repairs and parts replacement with lower footage costs.

4. Because, when coring, the stabilizing action of the reamer assists in maintaining rotation of the core barrel on its true axis, resulting in higher core recovery—particularly in soft or broken strata.

5. Because of the patented locking device, the entire reamer assembly is held securely in place, eliminating costly breakage or loss of parts. Highest factor of safety to well and equipment is thus assured.

6. Because of their large contacting area, the cutters, when replaced with hardened steel, knurled rollers, transforms the reamer into an excellent tool for rolling out battered or collapsed casing.

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Goliad County, is coring at 5028 feet, about the level it expects to pick up a possible producing sand.

In the same county, Magnolia Petroleum Company's Weldon & Lackey 6, drilled to 4050 feet and plugged back to 3720 feet for completion. It was intended as a Conroe sand test, but tested dry in that formation at 3910-25 feet. The well is now being completed in the Pettus sand at 3708-20 feet, where it showed for a producer on drill stem test.

MIRANDO FAILURES

Laredo.—Eight more tests were announced during the week in the Mirando district's wildcatting campaign. Three were abandoned and a fourth was an apparent failure.

Mid-Continent Petroleum Corporation et al's Laubscher 1, in the northwestern portion of Webb County, failed to develop production in sand at 2979-89 feet in the Indio or Wilcox, and was drilling ahead below 3228 feet. It showed a little fresh water and distillate at that level. This is one of the key wells of the district due to its position in area.

F. A. Gillespie and Sons' E. Perez 1, Arriba grant, three miles west of San Diego, was one of three Duval County abandonments. It stopped at 5681 feet. W. L. Golstone's Welder 1, Section 217, northeast of Loma Novia, was abandoned at 3018 feet and McCandless and Cloyes' Sutherland 1, 126, just south of Loma Novia, stopped at 2941 feet.

Magnolia Petroleum Company's new Labbe ranch test, 2/3 mile northwest of the Labbe Field, Duval County, will be closely watched. It is near the center of Section 221. Considerable play has been given this immediate trend. Mills Bennett is near 3,000 feet in I. G. Yates 4, fourth test on this ranch which adjoins the Labbe ranch. Just across the county line in McMullen County, Humble Oil & Refining Company's Edrington 1, SW Section 57, has been abandoned just below 3000 feet after testing salt water in upper horizons.

Deep Potential

SAXET FIELD SHOWS SOUTH TEXAS RESERVE SUBSTANTIAL

SAXET, Nueces County, provides the most perfect example of the great potentialities of South Texas Gulf Coast's fields through the development of deeper sands. The district sprang into prominence during last week with W. A. Richardson Petroleum Corporation completing a good producer in the recently discovered 6300-foot horizon.

The well came in making several barrels of 50 gravity oil per hour through ⅛-inch choke showing a tubing pressure of 1800 pounds and casing pressure of 2400 pounds*. It definitely extends the oil production of the deep sand two miles to the northeast. Two oil wells and one gasser have been completed in this sand.

This well, which apparently leads the way to another drilling boom in the field is Maggie Harrell 2, in the northwest corner of the tract, Block 37, Sheppard Farm Lots.

The 6300-foot sand was discovered September 10, 1936, by W. W. Chapman, Trustee's Morgan-Clark 4, which was drilled to 6415 feet after logging a gas and oil sand at 6268-94 feet. Casing was set at 6340 feet and perforated at 6286-94 feet, where the well was completed flowing 32.08 barrels of 58.05 gravity oil in 6 hours through 7/64-inch choke and showed tubing pressure of 2200 pounds and casing pressure of 2400 pounds. The well had failed to make a producer in the 5800-foot sand producing in offset wells.

The only other completion in the deep sand is Houston Oil Company's Fee 2-A, just south of Viola and 1¼ miles north and east of the discovery well. It drilled to 6324 feet, logging the sand at 6274-6323 feet. Completion was affected through casing perforations at 6284-94 feet where the well made a large gasser through 9/64-inch choke and showed tubing and casing pressures of 2250 pounds.

Ten wells have been drilled to the 6300-foot sand or below this year, 3 making producers, 5 being failures in the lower level and 2 are still active. One was drilled to 6809 feet, to be the deepest of the year.

Interest in this development is not just in the fact that it opened another important producing level for the Saxet field, but it does indicate there likely will be a multiplicity of sands in the Frio and below. These sands, likewise, may be found at various levels in different portions of the field, depending on structural and lensing conditions.

Saxet development waned several years ago when above 5000 feet proved disappointing in several sectors of the field. Later exploration, however, opened new lenses in other portions of the field where prolific wells were completed. A drilling boom has been underway for nearly two years, its peak being reached earlier this year after a failure at an upper level was deepened to be completed in a new sand at 5800 feet. Since that time, this sand has beeen a focal point of development. As the deeper sands were extended, the spread to include much of the field producing in the upper levels, bringing the drilling of many twin wells.

There have been no more than 25 wells drilled to the level of the 6300-foot sand or below in this general area, nearly half of them being during 1936. Those tests drilled to depths as great as 8000 feet show several more interesting sand sec-

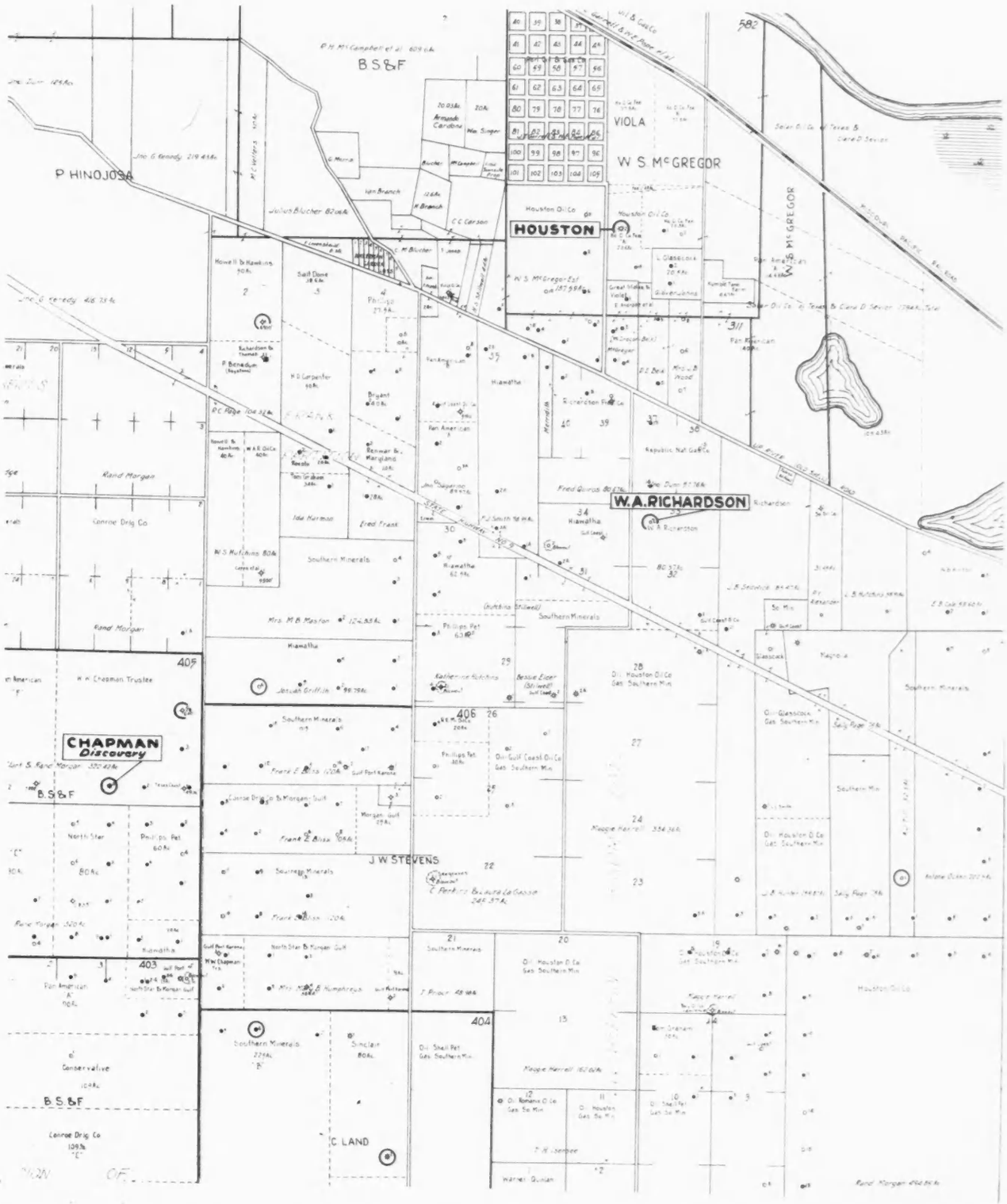
*See page 59.

6300-Foot Sand Test in Saxet Field, Nueces County

COMPANY	Lease	No.	Date Completed	Elev. df.	TD	6300 Feet Sand	Casing Record	Remarks
W. W. Chapman	Morgan-Clark	4	9-10-36	66	6415	6268-94	6340	Perf 6286-94, flowed 32.08 barrels of 58.05 gr oil, in 6 hours, 7/64 in ch. TP 2200 CP 2400 lb.
W. W. Chapman	Morgan-Clark	5	9- 7-36	70	6401	.....	....	Abandoned.
Hiawatha Oil Co	N. J. Griffith	6	Active	69	6408	6305-18	....	Attempt to recover stuck DS, DST 6305-18, showed 90 ft mud and oil, and 150 ft s/w.
Houston Oil Co	Fee	2-A	11- 7-36	59	6324	6274-6323	6324	Perf cas 6284-94, comp gasser 9/64 in ch, TP & CP 2250 lb.
Howell & Hawkins	Page Bros	1	10-25-36	76	6809	6324-45	6492	Tested s/w through perf 6328-30 & 6335-39 ft, abnd.
Pan-American Prod. Corp.	Rand Morgan	1-A	10-15-36	73	6400	6376-64	....	Abnd.
Richardson Petr. Corp	Maggie Harrell	2	11-16-36	66	6356	6311-36	6344	Well sd/tr & recored sand 6319-44 ft, perf cas 6320-35 ft, flowing considerable 50 gr oil, 1/8 in ch, TP 1800 CP 2400 lb.
Sinclair Prairie Oil & Gas Co.	T. H. Isensee	2	8-16-36	58	6529	6342-60	6529	Test s/w 6300 ft sand, plugged back, perf 4075-85 ft. Comp as gasser.
Southern Minerals Corp	T. H. Isensee	6	10-24-36	64	6412	6282-6312	5850	Test s/w in 6300 ft snd, sd/tr, dr to 5850, comp 105 bpd 1/8 in ch, TP 880 lb CP 2085 lb.
Southern Minerals Corp	A. J. Till	1	11-13-36	59	6605	.....	....	Plugged back, perf 4852-69 ft, comp oil producer.

tions, all of which may be productive somewhere on the Saxet structure. Just what lies below 8000 feet remains to be seen through future work.

The success of the development in Saxet is summed up by enhancing the reserves of all fields along this trend. Some of the oldest producing areas again are coming into the play with considerable work being directed to the opening of deeper sand lenses. Refugio-Fox-Greta area is being merged into the prolific production of Tomoconnor, Refugio County, thought to be an entirely separate field when discovered less than two years ago.



Map shows development of 6300-foot sand in Saxet field, Nueces County. All wells drilled to 6300-foot sand or below this year are circled. The three producers are marked, showing the wide area covered by this exploration. Map by Porter Regenold, Corpus Christi, Texas

New Orange Sand

ANAHUAC FIELD EXTENDED BY GULF'S POMMER 1

WEEKLY STAFF REPORT

Houston. — Extension of Anahuac field, Chambers County, and discovery of a deeper producing horizon at Orange field, Orange County, held the interest of oil operators in the Texas sector of the Gulf Coast last week.

Approximately 1700 feet east of production at Anahuac, Gulf Oil Corporation was preparing to complete Pommer 1 at 7127 feet. Pommer 1, H. & T. C. Survey, Section 46, on a 10-minute drill stem test from 7115 to 7127 feet showed 6500 feet of pipe line oil, 100 pounds pressure, and no water through two quarter-inch chokes. Top of the main oil sand was logged at 7120 feet. After running tubing the oil will be turned into the burning pits until clean.

Gulf Oil Corporation announced location for Wilcox 1 at Anahuac after obtaining a good showing of oil in Pommer 1. Wilcox 1 is 466 feet each way out of the southwest corner of H. & T. C. Survey, Section 48. The same operators completed Knowles 4, W. T. Knowles Survey, for a gas well at 7086 feet. It was estimated that Knowles 1 made one million cubic feet of gas daily. Gulf abandoned location for Knowles 5.

On the north side of Anahuac, Humble Oil & Refining Company completed White 15, J. McGahey Survey, flowing 374 barrels of fluid, 320 barrels net oil, daily through a quarter-inch choke with a tubing pressure of 1200 pounds and a casing pressure of 1400 pounds. Casing was perforated with three shots from 7015 to 7016 feet.

On the northwest side of Anahuac Humble Oil & Refining Company's White B-6, J. McGahey Survey, came in for 13 barrels per hour through a quarter-inch choke. Tubing pressure was 400 pounds; casing, 1000 pounds. The hole was drilled and cored to 7129 feet in oil sand after logging top of the pay at 7110 feet. The 5½-inch casing was cemented at 7121 feet.

New Deep Sand at Orange

J. R. Turnbull's Lutcher Moore 1, northwest flank of Orange field, Orange County, discovered a deeper producing horizon at 5605 feet last week when the well made 15 barrels of distillate and 775,000 cubic feet of gas daily through a one-eighth-inch choke. Tubing and casing pressures were 2000 pounds. The casing was perforated with 17 shots from 5585 to 5605 feet and the test came in flowing 53 gravity distillate. The deepest horizon at Orange prior to completion of this test has been around 5300 feet.

One location south of production at Amelia field, Jefferson County, Humble Oil & Refining Company's Phelan 1, C. Williams Survey, was flowing into burning pits from 6781 feet, Frio formation, at the close of the week. Oil sand was logged from 6734 to 6781 feet, and 7-inch casing was cemented on bottom of the oil sand.

West of production at Nome in Jefferson County, Shell Petroleum Corporation's Carpenter 2, M. E. Peveto Survey, was finaled as an oil producer at 6055 feet. It made 497 barrels daily through a quarter-inch choke, with a tubing pressure of 625 pounds and a casing pressure of 575 pounds. The gas/oil ratio was 380 to 1. After completing Carpenter 2 the corporation announced location for Paggi 2, 932 feet west of Paggi 1, J. W. Kirby Survey.

Fairbanks Field Extended

Fairbanks field, Harris County, was extended 933 feet south November 27 when Stanolind Oil & Gas Company completed L. Dopsaluf 2, A. Fry Survey, at 6827 feet flowing 10 barrels per hour through a 11/64-inch choke, with a tubing pressure of 2000 pounds and a casing pressure of 2150 pounds. Prior to completion the crew perforated casing from 6825 to 6827 feet with 5 shots and made a drill-stem test that showed 4 joints of clean oil, 9 joints of oily mud and a 200-pound pressure in six minutes through two quarter-inch chokes. The 2½-inch tubing was run before the production test was made.

Glenn H. McCarthy's Kilgore 5, J. Townsend Survey, Cotton Lake field, Chambers County, was plugged back and waiting on cement at the end of the week after making a production test which showed oil, gas and salt water in Marginulina-Frio formation. At 6298 feet the well made an estimated 1,750,000 cubic feet of gas daily, a small amount of oil and salt water. Tubing pressure was 2000 pounds and casing pressure was 2300 pounds.

Humble Oil & Refining Company's Brown 6, on the northeast side of Hastings field, Brazoria County, made 21 barrels per hour through a quarter-inch choke, with a tubing pressure of 750 pounds and a casing pressure of 700 pounds. Depth was 6020 feet after plugging back from 6125 feet.

Stanolind Oil & Gas Company added two more producers to the list at Hastings when Kidd 4 and Williams 7 were completed. Kidd 4 made 394 barrels daily through quarter-inch choke with a tubing pressure of 875 pounds and a casing pressure of 950 pounds from 6020 feet. Williams 7 made 595 barrels daily through a quarter-inch choke from 6080 feet with a tubing pressure of 935 pounds and a casing pressure of 990 pounds.

Ken Bend Oil Company announced location for Maco Stewart 3, 660 feet south of Coast Petroleum Corporation's Maco Stewart 2, W. K. Wilson Survey, Gillock field, Galveston County.

Needville Wildcat Location Made

Approximately one mile southeast of Needville, Sam Harrison made location for a wildcat on the Needville prospect. V. Horak 1 is 330 feet out of the east or southeast corner of a 77-acre tract, or 1320 feet from the northeast line and 330 feet from the southeast line of Section 36 in the H. & T. C. Survey, Ft. Bend County.

Five Corners, or Withers, field was extended northeast when The Texas Company completed another gas well. Pierce Estate B-4, A. H. Pierce Survey, made an estimated 1,000,000 cubic feet of gas daily through a quarter-inch choke with a tubing pressure of 2075 pounds and a casing pressure of 1600 pounds. The hole was drilled to 5955 feet and plugged back to 5523 feet. Casing was set at 5530 feet.

In the recently discovered Seabreeze wet gas field, Sun Oil Company was running a string of 9⅝-inch casing to 8715 feet in White Estate 2, T. & N. O. Survey, Section 128. The operators will make a production test of a gas sand cored below 8600 feet.

Sterling Oil & Refining Company's South 1, Garwood area, Colorado County, again got salt water on a test at 6042 feet. Casing was perforated with 80 shots from 6030 to 6042 feet and in 30 minutes the well showed no pressures and 125 feet of drilling mud with a slight show of gas.

On the southeast flank of Clay Creek field, Washington County, Sun Oil Company's Lauter 1, N. Clay Survey, was being swabbed at 7470 feet. A drill

TEXAS GULF COAST

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANAHUAC—		
Gulf, Knowles 4	¶1	7086
Knowles 5	*	lcn
Humble, Engles 5	683	7085
White 15	320	7016
HASTINGS—		
Humble, Brown 6	350	6020
Stanolind, Kidd 4	394	6120
Williams 7	595	6080
HIGH ISLAND—		
Stanolind, B. & O. 9-B	109	5213
LOUISE—		
Pure, Adams 2	32	5142
MANVEL—		
Sterling, Hamilton 1	27	4060
NOME—		
Shell, Carpenter 2	497	6024
Sun, Maubles-Long 1	40	6060
ORANGE—		
J. R. Turnbull, Lutcher Moore 1	15	5605
ORCHARD—		
Gulf, Moore 48	378	3690
RACCOON BEND—		
Humble, Duncan State 3	480	4060
Jackson 5	*	4360
Wilson 9-X	120	3598
TOMBALL—		
Humble, Tomball Townsite Unit 19, No. 1	180	5577
WITHERS—		
Texas Co., Pierce Estate B-4	¶1	5530
Pierce Estate C-16	312	5558

*Failures; †Junked; ¶Million cu. ft. gas.

stem test of formation at 7412 to 7469 feet showed two heads of oil in 15½ hours through a three-eighths-inch choke before the packer gave way. Another drill stem test from 7412 to 7470 feet showed a 30-pound pressure and flowed oil by heads through five-eighths and three-eighths-inch chokes in 14½ hours, and the packer again slipped, At the end of the week tubing was run and the crew was swabbing the hole.

538 TEXAS STARTS

Austin.—The Texas Railroad Commission approved last week permits for drilling 538 new wells in Texas, 394 more than were allowed the week before. The increase was caused by approval of a great many applications for permits to drill wells as exceptions to the spacing rule, together with an unusually large number of permits from the North Texas district.

East Texas reported 115 locations which included 48 in Rusk County, 41 in Gregg County, 22 in Upshur County, three in Smith County and one in Cherokee County.

The East Central Texas district listed 77 permits with 43 in Cass County and 12 in Titus County.

There were 109 permits from North Texas, including 37 in Young County, 26 in Jack County, 25 in Wichita County and 10 in Archer County. The adjacent West Central Texas district listed 12 permits.

Gulf Coast operators reported 103 permits with 42 in Nueces County and 10 in Harris County. From Southwest Texas 67 permits were reported, including 34 in Duval County and 15 in Zapata County.

West Texas operators listed 45 locations, with 13 in Ward County and 12 in Winkler County. There were 11 permits from the Panhandle.

DRILLING DEEPER
South Louisiana has relatively quiet week

Lake Charles.—Although operations were quieter than usual in Louisiana Gulf Coast during the past week, operators were drilling deeper in wildcat and proven territories in search of newer producing horizons. There was no outstanding district in the area the past week.

Probably the most interesting wildcat drilling is Humble Oil & Refining Company's Ellender 1, Section 23-19s-19e, Terrebonne Parish. The test

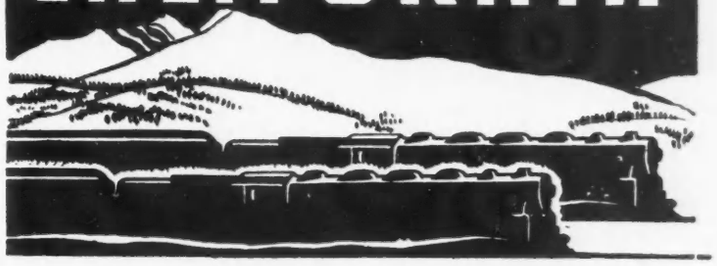
SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls	Depth
CAMERON MEADOWS—		
Magnolia, Cameron Meadows 18....	465	3613
NEW IBERIA—		
Texas Co., Cralino 2	990	4025
ROANOKE—		
Humble, DeVilbis B-5.....	648	8845
SULPHUR—		
Union Sulphur, Fee 837.....	530	4373

*Failures; †Junked; ¶Million cu. ft. gas.

History's Lowest!

ALL-WINTER FARES TO CALIFORNIA



Southern Pacific again has pioneered. The all-time low all-winter round-trip fares to California are now in effect, and will be until next May 14th. Stopovers are permitted anywhere en route. The drastic reductions apply from all "SP" points in Louisiana and Texas. To give you an idea how low the fares are, examples from Houston are shown:

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created excitement when a rumor was started that it had cored oil sand at 8235 feet and that preparation was being made to test. However, it was learned that at 8378 feet the hole was off vertical at bottom and it was necessary to plug back to 8235 feet to straighten the hole. A soft sand was encountered at 8375 feet and this is probably the reason it was rumored that the wildcat was showing oil.

The Texas Company was preparing to make production test on Hanzen 2-B, New Iberia field Section 54-12s-7e, Iberia Parish, after running an electrical logging device to 4742 feet. Top of the oil show was logged at 4658 feet. The electrical device showed 160 olms resistivity and 100 millivolts porosity. Seven-inch casing has been cemented at 4705 feet.

Another sand showing oil was cored in Humble Oil & Refining Company's Wilbert 1, Bayou Blue, Section 67-9s-11e, at 3106 to 3120 feet. However, this sand has been passed and operators were continuing below 3490 feet at the close of the week.

North of production at Lafitte, the deepest commercial producing field in Louisiana Gulf Coast, The Texas Company's R. C. Milling 1, Section 20-17s-24e, Jefferson Parish, was coring in sand with streaks of shale at 8100 feet. A slight showing of oil was cored from 8056 to 8063 feet and from 8065 to 8096 feet.

In St. Landry Parish, Stanley Thompson encountered a gas sand in Lewis 1, Section 29-5s-6e, north of Port Barre, last week at 4226 feet and was conditioning mud to combat the gas.

Pan American Production Company made location at Sorrento field, Ascension Parish, for United Land 7, 100 feet north of United Land 2, Section 15-10s-4e.

Salt at English Bayou

East of production at English Bayou field, Calcasieu Parish, Union Sulphur Company's Kaufman 3, Section 13-9s-8w, got salt water instead of oil last week when a production test was made at 7085 feet. The hole has been plugged back to 6998 feet and another test will be made.

Fohs Oil Company has spudded Castle 16, 2050 feet south and 850 feet west of center of Section 13-9s-8w at English Bayou, Calcasieu Parish. It is proposed to carry the test to the 7050-foot sand.

On the northern flank of Gillis field, Calcasieu Parish, Union Sulphur Company made a test on Powell Lumber Company 10, Section 12-9s-8w, and swabbed salt water at 6758 feet. Sand showing oil was logged from 6748 to 6758 feet and after setting screen and liner swabbing was commenced. Special valves will be run in an attempt to produce commercial oil.

Another location was made at Starks field, Calcasieu Parish by J. R. Turnbull. He will try and convert Industrial Lumber Company 1, 1720 feet south and 150 feet east of the northwest corner of Section 20-9s-12w, into a commercial oil producer. The operator's Lutcher Moore 1 made 21 barrels per hour from the 4200-foot sand.

Continental Oil Company should be down to the 11,732-foot sand in Hebert 1, Abbeville prospect, Vermilion Parish, the coming week. At the close of last week drilling was in progress in a side-tracked hole at 11,460 feet. Hebert 1 blew out and made gas at 11,732 feet some time ago.

An electrical logging device was run to 8880 feet in Magnolia Petroleum Company's Johnson School Land 1, Section 16-15s-14w, last week and failed to show any thing of importance. Drilling is being continued below 9165 feet.

Shell Petroleum Corporation is having trouble with Sturdevant 1, South Roanoke prospect, Section 25-10s-4w, Jefferson Davis Parish. The wildcat is attempting to blow out while the crew fishes for a stuck drill pipe at 9749 feet. The engineers are treating the hole and mud to keep it from blowing out.

After completing DeVilbiss B-5 for 27 barrels of pipe line oil per hour through a ¼-inch choke from 8845 feet, Humble Oil & Refining Company made another location at Roanoke. Thomas 3 is 1630 feet south and 2507 feet west of NEc Section 11-9s-4w.

Lucey Boiler Corrects Error in Recent Ad.

A typographical error in the advertisement of Lucey Boiler and Manufacturing Corporation, November 9, gave the A. P. I. rating of Lucey boilers at 140 hp. instead of 104 hp. The error was due to transposition of figures. Lucey officials regret the incident and are anxious that no misunderstanding or confusion result therefrom.

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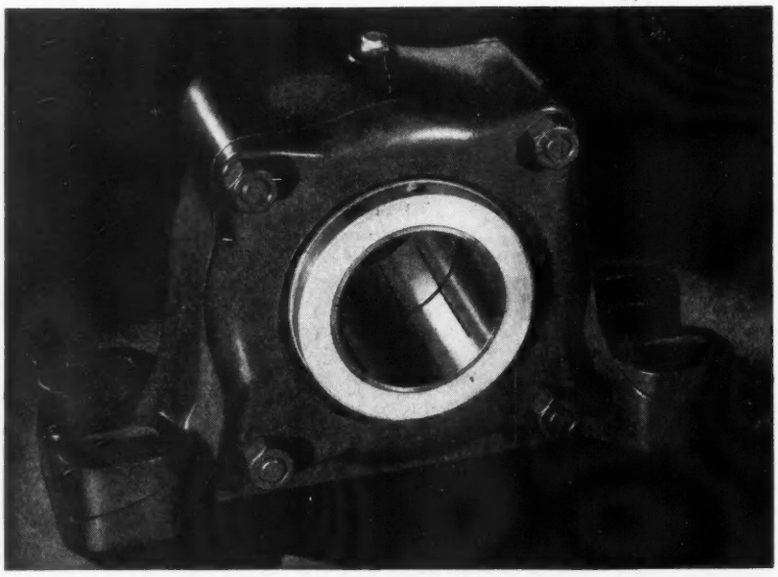

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Northeast Limit

RODESSA TEST SHOWS DRY: NORTH EDGE PRODUCES

WEEKLY STAFF REPORT

Shreveport.—The northeastern limits of the Young horizon of the Rodessa field apparently were marked last week when Idessa Oil Company (S. P. Borden et al) swabbed dry in Sumner 1, NW SW SW 10-23n-15w, Caddo Parish, at 6197 feet in lime; elevation is 291 feet, which gives total sub-sea depth somewhat below the water level of the field proper. Casing was cemented at 6150 feet. Efforts may be made to perforate casing and test some of the upper horizons which are said to have had some showings of oil and gas. However, it appears that this test probably is south of the Rodessa Fault. It is ¾-mile east of nearest production.

While this test marked the northeastern limits of the field, J. Edward Jones' Maidie Sharp 1, SW NW SE 4-23n-16w, 1½ miles north of production in the northwest part of the Louisiana side of the field, is showing for a god oil producer in the Gloyd sand. Its behavior proves the theory held by some that there is a nose extending northwest from the Louisiana producing part of the field.

With elevation of 229 feet, Jones' Sharp 1 logged top of the Hill horizon at 5819 feet, logging 14 feet of this formation with shows of oil and distillate, the 3 upper feet showing oil stains and the remaining 11 feet showing gas and distillate. The Gloyd formation was logged from 5980 to 5991 feet, this being a very brown porous sand. Total depth is 6035 feet.

The well on Thursday, November 26, was flowing into pits and was still ungauged but Standard Pipe Line Company was laying a gathering line to the location and tankage was being erected. Pressure increased Wednesday night from 250 pounds on tubing and casing to 700 pounds on each. This test logged the chalk from 2040 to 2550 feet.

Location is only ¾-mile south of Haynes Oil Corporation's Embree Heirs 1, SW SW 9-20-28, Miller County, Arkansas, that was a dry hole after being drilled to 6514 feet almost a year ago, and was definitely off structure.

Activity Still Slow

New activity on the Louisiana side of the Rodessa field continued practically at a standstill last week as operators marked time for the issuance of a new gas-oil ratio order. Only one new location was made on the Louisiana side, this being in the northeast part of the field. The Texas side secured seven new locations.

W. F. Lacey and associates' R. J. Lewis 1, H. Holbert Survey, west outpost test which has elevation of 294 feet and topped the chalk at 1865 feet, is drilling below 3375 feet. Eastern Texas Production Companys' Belote 1, H. Holbert Survey, 1 mile west outpost is drilling below 5200 feet after topping anhydrite at 5042 feet; elevation is 225 feet.

H. L. Hunt, Incorporated's I. N. Shelton 1, 202-acre tract, James Davenport Survey, which swabbed salt water with a show of oil in 3 feet of Young formation at 6051 feet week before last, had casing perforated at 6017 to 6021 feet and again tested salt water, this test being in the Dees formation logged from 6014 to 6038 feet. It marks the western limits of the field to the north apparently.

Bay Oil Company's Parker 1, G. Crowder Survey, 2 miles northwest of production, and north of a supposed lateral fault, which swabbed as high as four barrels of oil in an hour after casing was perforated in the Gloyd twice, swabbed 60 barrels daily through the casing after casing was perforated in the Hill horizon from 5860 to 5878 feet and also flowed a small stream of oil and wash water. Operators were arranging to plug back to 6050 feet from 6121 feet and run tubing. If further efforts to make it flow fail it may be standardized.

Thirteen miles southwest of nearest production and in Marion County, Overlees et al (Holcomb, Thomasson, Flesh and Hootkins) Lizzie Henderson 1, R. Bennington Survey, was drilling below 2900 feet.

Some geophysical activity is still under way in Cass County. Humble Oil & Refining Company has a reflection seismograph unit working around the Dickson Dyson Survey in Cass and around the John Jackson Survey, Bowie County. Shell Petroleum Corporation has a party in Cass around the village of Marietta and Stanolind Oil & Gas Company has a crew working around Douglasville.

Meters Installed

One hundred and seventy-five wells on the Louisiana side of Rodessa have installed meters for measurement of their gas production, almost half of the wells on that side of the field. These installations were placed in operation by the companies as an aid to measuring the gas yield that comes with the oil in practically all wells in the field and as an aid to determining their gas-

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SHREVEPORT, LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe—Cotton
Valley—Turnertown—Greggton—Houston

oil ratio which under a Louisiana Conservation Commission order is 12,500 to 1 for oil wells and 25,000 to 1 for gas wells.

Some of the wells have individual meters while others are hooked to a master meter on different leases.

Five wells at Rodessa, one by Vaughn Production Company and four by United Gas Public Service Company, have installed pumping units.

Line Rumor Persists

Lending color to the report that The Atlantic Refining Company has not abandoned its idea of a pipe line outlet to Rodessa, was the report last week that United Gas Public Service Company has contracted to deliver to Atlantic for a period of two years starting January 1, 1937, a total of 7500 barrels of Rodessa crude daily.

Colotexo Gasoline Company has contracted with Standard Oil Company of Louisiana to furnish the latter 500 barrels of gasoline daily from its plant in section 14-23n-16w, at Rodessa.

Phillips Petroleum Company is making plans for a 50 million cubic foot daily minimum casinghead gasoline plant in the William R. Meyers survey, Cass County. Work is expected to start soon.

14 LOUISIANA PERMITS

Shreveport, La.—Fourteen drilling permits were authorized last week by the minerals division, Louisiana Conservation Commission. Ten were for North Louisiana, divided among the following parishes: Caddo, three, including one in Rodessa; Grant, one; Morehouse, one; Ouachita, one; Sabine, one; Union two; and Webster, one. Four in south Louisiana were divided among the following parishes: Acadia, one; Calcasieu, two; and St. Mary, one.

Second at Sugar Creek

TRAVIS PEAK FURTHER PROVED IN OLD GAS AREA

Shreveport.—The Sugar Creek field added its second Travis Peak gas-distillate well last week when Sugar Creek Syndicate, composed of Standard Oil Company of Louisiana, United Gas Public Service Company and Triangle Drilling Company, completed Darrett 2, SE SW 31-20n-5w, Claiborne Parish, at plugged-back depth of 5703 feet, making an estimated 12 to 20 million cubic feet of gas and considerable distillate daily through ½-inch tubing choke with tubing pressure 2100 pounds and casing pressure 1700 pounds.

This well is 1¾ miles northeast of the same company's Kilpatrick 1 completed at the same horizon several months ago after Darrett 2, which was drilled to 8616 feet, where a fishing job developed, had shown for production at this higher level to which it eventually was plugged back after weeks of fruitless effort to clean the hole at 6200 feet. The depth of 8616 feet set a new depth record for North Louisiana and Arkansas.

The Sugar Creek field is a unitized area with several thousand acres in and around the field unitized. It has been producing for several years from the Glen Rose at the 4300-4500 foot level, making a wet gas.

Sherrouse & Snyder's Kimble 1, NE SE SW 36-12n-8e, Franklin Parish, had a show of oil and gas in the Minden at 1500 feet but did not stop to test it. With elevation of 65 feet this test logged base of the Jackson at 684 feet, as compared to sub-sea base of the same formation of 722 feet in Howard M. Jones' recent test in Section 29-12n-10e, that showed for one million feet at that horizon. The Franklin Parish test, however, had no show at base of the Jackson. It is planned as a 4500-foot test and is on a 20,000-acre block.

Sugar Creek Syndicate's Taylor 1, Section 1-19n-5w, in the Sugar Creek field was dry in a drill-stem test from 5718 to 5809 feet and is drilling ahead.

Long String

Gulf Oil Corporation set a new record for North Louisiana and Arkansas last week for a string of casing when it cemented 7-inch casing at 8040 feet in R. R. Rhymes 15, NW SE NE 32-17n-6e, Richland Parish, one of three test in North Louisiana ever to pass the 8000-foot mark. Total depth is 8113 feet in red sand. The casing was set to protect the hole as the test may be drilled to 10,000 feet.

DeSoto Oil & Gas Company's (R. O. Roy) Dunn & Olsen 1, N½ NW 15-16n-10w, Bienville Parish, tested 20 joints of salt water in a 10-minute drill-stem test from 4280 to 4462 feet and is shut down. With elevation of 259 feet this test logged massive anhydrite from 3985 to 4217 feet and had a salt water sand from 4224 to 4244 feet then logging porous oolitic lime from 4456 to 4462 feet.

Seaboard Oil Corporation's Cotton Valley Land & Timber Company 1, NW SW 35-22n-10w, Webster Parish, north of Cotton Valley which has been checking low, checking 125 feet lower than Cotton Valley wells on top of the massive anhydrite logged from 4530 to 4735 feet, is drilling ahead after testing dry in a drill stem test at 4835 to 4877 feet having missed recovery of 3 cores at 4840 to 4877 feet; elevation is 200 feet.

In Bienville Parish, Jack Boone of Houston, Texas, is assembling a block centering around Section 30-16n-5w. In Claiborne Parish, Magnolia Petroleum Company is taking leases in township 23 north, range 7 west where several individuals are also leasing. Lion Oil Refining Company is leasing in the same parish in township 19 north, range 7 west. Phillips Petroleum Company has a seismograph unit in townships 17, 18 and 19, ranges 6, 7 and 8 west. In DeSoto Parish, Shell Petroleum Corporation is still leasing in township 11 north, ranges 14, 15 and 16 west. N. V. Duncan is adding to a block he has around Section 23-11n-14w of the same parish where a drilling obligation is said to call for starting a 5300-foot test by December 15. Mid-Continent Petroleum Company has a seismograph unit still working in townships 14 and 15 north, ranges 4 and 5 west, Bienville Parish.

In Union Parish, Standard Oil Company of Louisiana is blocking in Sections 2, 3 and 4-20n-1w, and is adding

4 ARKANSAS PERMITS

El Dorado, Arkansas.—Four drilling permits were authorized last week by the Arkansas Board of Conservation, as follows: Hempstead County, Root Petroleum Company, El Dorado, D. F. Jones 1, located 330 feet south and west of NEc SW NE 16-13-23; Nevada County, Benedum and Trees Oil Company, Pittsburgh, Pennsylvania, L. Block 1, 330 feet south and west NEc NE SE 9-14-20; C. C. Fincher 1, located 330 feet south and east NWc SW NE 10-14-20; John R. Lewis, Fort Morgan, Colorado, William Haynie 1, located 330 feet north and east SWc SW NE 10-14-20.

NORTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Pine Island) —		
W. D. Chew, Rives 2, 5-20n-16w....	50	952
Stanolind O&G Co., Dillon Hrs. 112 14-21n-15w	50	1685
DE SOTO PARISH—		
W. C. Nabors, Fee 1, 8-12n-13w...	*	1217
GRANT PARISH (Urania)—		
Theo Davis et al, T. R. Maxwell 1, 9-9n-1e	*	1544
Grant Oil Corp., Swope 2, 17-9n-1e	*	1638
LA SALLE PARISH (Urania)—		
Waller et al, Pendarvis 1, 26-10n-1e	50	1516
SABINE PARISH (Zwolle)—		
A. H. Tarver, Baker 3, 36-8n-12w..	*	6178
CADDO PARISH (Rodessa)—		
R. W. Norton, Starcke 1, 16-23n-16w 1200		5995
Phillips Pet. Co., Wilbanks 1, 8-23n-15w . .....¶1 & 500		6082
McDonald 2, 17-23n-15 1000		6075
Snowden & Anding, Taylor 3, 23-23n-16w . .....¶8 & 500		5952
Louisiana Oil Ref. Corp., Ratcliff 4, 16-23n-16w 1500		6045
CASS COUNTY, TEXAS (Rodessa)—		
American Liberty Oil Co., Bauguss A-4, J. H. Rives sur.....1000		6087
Magnolia Pet. Co., Mary Rives 7, Jno. Collum sur 1000		6033
Mary Rives 9, Jno. Collum sur..1000		5990
Hall 3, Jas. Young sur.....1100		6033
United Gas Pub. Serv. Co., Rambo 1, Robert Trammell sur 1000		6020
Bewley 2, H. Holbert sur.....1200		5980
Rambo 2, Robt. Trammell sur...1200		6010
Wall A-3, Alex Archer sur.....1500		6085

*Failures; †Junked; ¶Million cu. ft. gas.

to its holdings in township 20 north, range 2 east. In townships 22 and 23 north, range 1 east, Gulf Oil Corporation is leasing. Standard Oil Company has three blocks in this parish and is contemplating a deep test on one or more of them, one of which will probably go to 8000 feet.

Tom Crichton who has been leasing around Section 21-20n-9w, Shongaloo gas field, Webster Parish, is reported to have assigned his block to P. N. Wiggins, Jr., of Dallas, Texas. Reports have been current for some time that a deep test is contemplated by some company near the Shongaloo gas field.

Gets Major Strike

OIL IN POWDER WASH BIGGEST IN ROCKY MOUNTAIN AREA

WEEKLY STAFF REPORT

ARKANSAS

El Dorado, Ark.—Benedum & Trees Oil Company's Groves 3, Section 10-14-20, Nevada County, Arkansas, appears to be a commercial producer of 13 gravity oil in the Nacatosh sand having tested 500 feet of that gravity oil in a 1-hour drill-stem test from 1200 to 1231 feet. Top of the Nacatosh was 1217 feet. Casing was cemented for a test of this horizon.

Several weeks ago this same company's Groves 1 in the same section showed for a good pumper at 2190 feet. The oil from this well is 21 gravity and contract is reported to have been signed with an asphalt company to buy the production for 50 cents per barrel. The latter well is pumping about 30 barrels of fluid per hour, two-thirds oil. Several new locations have been made in this section, which is 4 miles southeast of the old Irma shallow field.

Joiner and associates (Odell Hinson) are preparing to drill plug and test Montana Realty Company 1, NE NW NW 3-17-28, Miller County. Revised total depth of this test is 5278 feet and 7-inch casing was cemented at 5270 feet. Base of massive anhydrite was 4590 feet and top of red beds was 3505 feet. The well logged 18 feet of formation showing oil stains.

One geoligical theory expressed is that this test is on the northwest flank of a structure around Fouke, recently shot by a geophysical crew and that Erwin & Leach's Red River Farm 1, Section 2-17-26, recently abandoned at 5212 feet was on the east flank of this structure.

El Dorado, Ark.—Hempstead County, scene of considerable drilling and geophysical activity recently, will get another 4000-foot test on a 5000-acre block assembled by C. L. Sharp of Shreveport. The block is located in township 14 south, range 23 west. In Columbia County, Frank Ryan has assembled a 3000-acre block centering around Section 23-17-19.

ARKANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
COLUMBIA COUNTY—		
Burford and Company, Kendrick 1, 7-19-18	*	5403
MILLER COUNTY—		
Erwin & Leach, Red River Farms 1, 2-17-26	*	5212

*Failures; †Junked; ¶Million cu. ft. gas.

Casper, Wyo.—What appears to be the major oil strike for 1936 in the Rocky Mountain area was made this week when the Mountain Fuel Supply Company's Carl Allen 1, NE SW 32-12n-97w, blew in for an estimated 1000 to 1500 barrels of high gravity oil per day in the Powder Wash gas field, Moffat County, northwestern Colorado. The well blew in November 23 as it was being cleaned of mud preparatory to testing an oil show in the lower Wasatch series at 5014-5032 feet. A week earlier the well had headed up with a 20-barrel show of oil through the mud.

Heretofore only gas has been discovered in Powder Wash, and the company was drilling the well to augment gas reserves for its distribution system through southwestern Wyoming and eastern Utah to Salt Lake City. Gravity of the crude is 40 degrees Baume.

Only one other well, a gas well, has been completed in Powder Wash. In 1931, the company completed Musser 1, Section 5-11n-97w, for 36,000,000 cubic feet of gas daily in a sand in the Upper Wasatch at 2150 feet. The field is located just south of the Wyoming state line and is approximately 40 miles south of the Union Pacific railroad.

Meanwhile, the Mountain Fuel Supply Company brought in State 1, NW NE 17-3n-24e, Clay Basin gas structure, Daggett County, northeastern Utah, for 8,500,000 cubic feet daily in the Dakota sand at 5740-5877 feet. Well has plugged back from the Morrison formation which was dry at 6120-65 feet.

On the Hiawatha field, also in Moffat County, Colorado, the company's Georgia Kuykendall 1, NE NE SE 22-12n-100w, is cementing off five feet of water sand above where it was testing at 2766-74 feet.

Company's Adam Cooper 1, CNW SE 15-16n-4w, on the south Baxter Basin field, Sweetwater County, southeastern Wyoming, is drilling at 2177 feet.

Well Due in Muskrat Field

Sinclair-Wyoming Oil Company's Muskrat 2-C, NE SW SW 1-33n-92w, a deep test to underlying formations of the Muskrat gas field, Fremont County, central Wyoming, is reported near completion at 7293 feet, with 3000 feet of oil in the hole. Operators are waiting on acid trucks before completing a production test. The producing formation in this well is Embar lime, topped at 7268 feet. The plug was drilled on the well November 4, but a streak of bad luck has prevented testing to date.

Northern Wyoming

Stock Oil Company's Griffin 1, NE NE NE 4-55n-97w, Garland field, Big Horn County, northern Wyoming, continued to hold the interest of oil men in that area throughout the week. The test cored saturation in Embar formation at 3917-65 feet last week, which was said to be the first recovery of oil from this formation in the field. No production test was made, and well is coring ahead at 4,167 feet. A barren lime streak was logged at 4138-62 feet. The company's Allen 2-X, 190 feet northwest of Allen 1, wild gas well, as a directional hole to kill the gas flow, is drilling in sandy sale at 2,290 feet. The gas flow of Allen 1 is coming from Embar-Tensleep formations.

Ohio Oil Company has a well in the Garland field near completion, Smith 2, an old Frontier well which was originally deepened to pump through to aid in killing the gas flow from Stock's Allen 1. Smith 2 is coring in good oil saturation in the Madison lime at 4191 feet. Location of the well is in W NW SE 35-55n-97w.

Peter Evanoff's McAllister 1, lot 40, NW NE SE 3-35n-97w, Garland field, is shut down at 2,747 feet, waiting on 8⅝-inch casing which will be run to 2500 feet.

Peay Oil Company's Benio Mining & Milling Company lease 1, CNE NE

MOUNTAIN STATES
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY (Cut Bank Field)—		
Nadeau Bros., Ewald 2, cse nw 9-32-5w	*	3061
Texas Co., Tribal 4 121, cnw se 36-33-6w	41	3031
WYOMING		
CARBON COUNTY (Hatfield Gas Structure)		
Ohio Oil Co., Hatfield 1, sec ne se nw 2-19n-88w	¶1½	3950
COLORADO		
ARCHULETA COUNTY— (Price Dome)—		
Wm. Hughes Estate Lee 13, cnl nw 24-33n-2e	1400	1200
WASHINGTON COUNTY (Hyde Block)—		
Indian Territory Oil Co., Vorce 1, cne ne 28-1s-49w	*	7005

*Failures; †Junked; ¶Million cu. ft. gas.

15-55n-97w, on the south Garland Fault block, is drilling at 4000 feet.

Ohio Oil Company has two wells drilling in the Byron field, Big Horn County, Wyoming. Clarissa Willey 1, Section NE NE NW 25-56n-97w, is drilling in the red beds at 4625 feet. State 1, NES 36-56n-97w, is drilling at 1217 feet.

Sidney H. Keoughan and Taylor Oil Company's Robinson 1, SW SW NW 24-66n-97w, Byron field, is drilling at 2950 feet.

In Badger Basin field, Park County, northern Wyoming, Resolute Oil Company's State 1, CNW SW 16-57n-101w, is cleaning out and testing for production in the Frontier sand at 8440-55 feet. The test was shot with about 20 quarts of nitro-glycerine and is reported as a probable good producer.

An attempt to extend Lance Creek field about three-fourths of a mile east was seen this week as Ohio Oil Company started building derrick for Leo 5 OPC-16, NW NW SW 35-36n-65w, Continental Oil Company's Apex-Account 32, CSE NW 34-36-65w, is the present eastermost producer of the Lance Creek field. It was completed in July for 50 barrels per hour from Basal Sundance formation at 4026 feet to extend the field one mile east.

Ohio Oil Company's Agnes Rohlff 1, CSW NE 32-36n-65w, Lance Creek field, Niobrara County, eastern Wyoming, is cleaning out and testing at 3864-964 feet in Basal Sundance. Depth of the well is 3867 feet, with seven-inch casing set at 3867 feet. The company's Carrie Putnam 6, CNW NW 4-35n-65w, is running seven-inch oil string to the top of the basal Sundance at 4000 feet.

In A. B. Cobb and Holly Development Corporation's Nat Novick 1, NE SE SW 6-35n-65w, Lance Creek, operators are whipstocking past lost tools at 3578 feet.

Continental Oil Company is starting another new well in Lance Creek, Schuricht 5-A, CNW SW 5-35n-65w, is a location. The company's Schuricht 2-B, SE SW SE 6-35n-65w, is waiting on cement to set around casing after cementing back for water shutoff from the basal Sundance at 4068 feet, and its Dielman 2-A, NW NE NE 7-35n-65w, in the southern end of Lance Creek field, is nearing critical depth at 3358 feet in the Sundance and is expected as an early completion.

Argo Oil Company's Elliott 8, NW SE 5-35n-65w, Lance Creek, is drilling at 2482 feet.

J. M. Huber Corporation's Joss 2, NW NW SW 3-35n-65w, Lance Creek, is drilling at 2629 feet.

About 25 miles northeast of Lance Creek field, Niobrara County, eastern Wyoming, Chester Oil Company's 3, E NW NE 14-39n-71w, West Mule Creek field, is drilling at 946 feet.

Drillers in the northern Montana fields were working with one eye on the weather during the past week as continuance of favorable drilling weather enabled them to complete two more wells in the Cut Bank field, Glacier County. No new wells were started, however.

2¾-Mile Cut Bank Extension

Most important of the completions in Montana fields this week was R. C. Tarrant's Reickoff 3, lot 1, NE NE 36-32-6w, which extended the proved area of the Cut Bank field 2¾ miles south and added nearly 10 square miles to the area of the field. Production of the well is rated at from 25-50 barrels daily. Total depth of the well is at 3072 feet with production coming from 2 sands. First sand was encountered at 3015-45 feet, and the second at 3049-63 feet. Operators may shoot with nitro to increase production.

The Texas Company's Tribal 3 121, SE SE 36-33-6w, Cut Bank, swabbed 93 barrels oil in the first 10 hours from 3037 feet.

Other fields, including the Kevin-Sunburst field, Toole County, northern Montana, reported routine activities for the week.

Progress of the Montana-Dakota Utilities Company's deep test wells on the Baker Glendive anticline, eastern Montana, is reported satisfactory for the past week R. S. Smith 1, CSE NE 8-4n-62w, Little Beaver Creek Dome, is drilling at 4620 feet in shale. Warren 1, CSW 28-3n-59w, Baker gas field, is drilling at 4886 feet.

Southern Wyoming

W. D. Marshall's Government 1, NW SW SE 12-15n-18w, Spring Valley field, Uinta County, southwestern corner of Wyoming, is drilling at 1436 feet.

Pacific Oil Company's Government 1-B, NW NW SW 10-14n-118w, Aspen field, Uinta County, is drilling at 1827 feet.

An excellent well was near completion in Rock River field, Carvon County, this week as Ohio Oil Company prepared for a production test of Harrison Cooper 11, NE SW SW 35-20s-78w. The test swabbed 1000 barrels in the first 24 hours from Sundance sand. The 8¼-inch production casing is set at 3148 feet. Depth of the well is 3210 feet.

Sinclair-Wyoming Oil Company has succeeded in loosening drill pipe which was frozen at 5264 feet in Wertz 10-A, SE NW 7-26n-89w, Wertz field, Carbon County, and is resuming drilling at that depth.

California Company's Holst 5, SE NE SE 13-17n-77w, Quealy Dome light oil field, Albany County, is drilling at 1104 feet. The company's recent start in the same field, Holst 6, NW NE SE 13-17n-77w, is rigging up.

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ROYALTY OIL SALE

Washington, D. C.—Proposals for the purchase of royalty oil accruing to the Government from leases on Federal lands in the Cat Creek oil field, Montana, will be opened by the Secretary of the Interior January 5, it was announced by the Interior Department November 24.

Only a small amount of oil is involved, 1934 receipts by the Government amounting to approximately 10,900 barrels, 1935 royalties being 14,000 barrels, and receipts for the first half of 1936, 6000 barrels.

Bidders will be permitted to make offers on the royalty oil for periods of one, three or five years, beginning February 1, next.

Big Dominguez Well

4080-BARREL PRODUCER IS COMPLETED IN OLD FIELD

WEEKLY STAFF REPORT

Los Angeles. — Shell Oil Company the past week completed a well on the prolific Reyes lease in the old Dominguez field for 4080 barrels of 29.4 gravity clean oil at a plugged depth of 7585 feet. The well also made 2,280,000 cubic feet of gas with 200 pounds tubing pressure and 1500 pounds casing pressure. Flow was through two beans.

Casing program included 18⅝-inch at 940 feet, 11¾-inch landed at 3864 feet, and 9⅝-inch cemented at 6680 feet. The flow is through 897 feet of perforated landed at 7575 feet.

Dominguez field is credited with 665 proven acres. The first completion was in 1923, while the deeper zone was proven in 1934. Most of the proven acreage is held by Shell Oil Company. For years the lower zone was not penetrated to any extent, and for a long time only 400 feet of sand was taken in.

Completion of a 4000-barrel well at this late day came as a surprise, and probably the only explanation is the fact that the field has been so carefully handled during its life. Only four wells are drilling in the field, but two new holes are to start very soon.

General Petroleum Corporation's Arvin 1, wildcat in the Arvin area, 15 miles southeast of Bakersfield, is being cored ahead at 7365 feet in shale and gray sand giving light cuts. A formation test of the interval 7244-7355 feet recovered 1170 feet of oil and mud in 30 minutes. No free water has been found below about 6660 feet.

Swabbing Wildcat

Shell Oil Company's Greer 1, wildcat in Section 15-31s-29e, about 2½ miles northwest of Arvin 1, is being swabbed for a production test. Water was entering the hole at 6050-6060 feet. The four-inch liner was reperforated 6030-6080 feet and 50 sacks of cement were forced out through the perforations. The well was then plugged to 6013 feet, and a test of the perforated interval 5720-6013 feet will be made before drilling out. Top of the basement schist was cored at 6151 feet and the hole bottomed at 6171 feet. The 5¾-inch water string was cemented at 5720 feet, and 465 feet of four-inch liner, including 441 feet perforated, was landed at 6148 feet.

Richfield Oil Company's El Segundo 1, El Segundo field, encountered the basement Franciscan schist at 7432 feet and was bottomed at 7435 feet. Preparations are being made to run seven-inch casing and cement at 7322 feet. The top of the nodular shale (middle Modelo-upper Miocene) was cored at 7204 feet, and top of the basal conglomerate (basal Modelo) oil zone was cored at 7329 feet. The oil zone consists of saturated conglomerate and oil sand with a noticeable absence of the usual "float" of schist fragments except in the lower seven feet. The location is ¼ mile southeast from the discovery well, Republic Petroleum Company's Republic-El Segundo 1, in which the tops of the nodular shale, conglomerate, and schist were cored at 7228, 7315, and 7385 feet, respectively.

Harbor Test Fishing

General Petroleum Corporation's Terminal 1, deep test well in the Los Angeles Harbor district, was plugged back from 5510-5091 feet. This interval includes the perforations in the 4¾-inch combination string (5510-5310 feet) which were open to the hole during recent tests. The 4¾-inch was perforated above 5091 feet, and the operator is fishing for the gun perforator, sand line, and a string of tools. Depth is 6814 feet, in schist.

General Petroleum Corporation's Patton 1, one mile west of Terminal 1, above, in Section 5-4s-13w, cored shale and streaks of oil sand from 2502-2674 feet. The 13⅜-inch water string is standing cemented at 2495 feet. The first water string in Terminal 1 was cemented at 2430 feet.

On the Sacramento river delta, about midway between Sacramento and San Francisco, Amerada Petroleum Corporation's Hamilton 1, Section 26-4n-2e, is being cored ahead at 5311 feet in brown shale. Location is one half-mile southeast of the discovery well of the area. Amerada Petroleum Company's Emigh 1, which was completed June 19 flowing 8,750,000 cubic feet of gas. Amerada's Happe 1, located in Section 22-4n-2e, 1¼ miles north and west of Emigh 1, is still standing suspended at 7029 feet, awaiting the outcome of Hamilton 1. Due to its nearness to the markets of the San Francisco Bay region, the development of a large and dependable supply of natural gas in this area would prove very important.

Deep Monterey Showing

E. H. Moore, Incorporated's Union-Sugar A-1, wildcat five miles northwest of Santa Maria in Section 25-10n-35w, was cored to 8020 feet in shale with streaks of oil sand of Monterey, middle Miocene age. Top of the Monterey was cored at 7696 feet. The hole is being reamed to cement 6⅝-inch casing at 7676 feet. This test was originally abandoned at 3035 feet as one of a series of seven core holes drilled by the Shell Oil Company for geological information.

K. L. Lystle's McKenna 1, wildcat three miles northeast of Redondo Beach in Section 33-3s-14w, is being abandoned. Recent swabbing tests of the interval 4317-4285 feet developed mostly water with some gassy oil. This test was drilled to 4317 feet by Pioneer Holding Company, Incorporated, and later to 7352 feet by the Shell Oil Company. Top of the basal conglomerate was cored at 7155 feet and top of the schist at 7235 feet. The conglomerate zone tested wet and the well was abandoned by Shell Oil Company, prior to being acquired by Lystle.

Standard Oil Company's Bodger 1, wildcat in the Gardena area, 12 miles southwest of Los Angeles, is being drilled ahead at 7215 feet in shale with streaks of sand. No showings of importance have been found, and coring is done only at intervals.

Holbrook Petroleum Company's Newhall Land & Farming Company 1, wildcat in Section 28-4n-16w, is being cored ahead in hard Modelo sand at 3890 feet. Top of the Modelo was cored at 3500 feet. Location is in the Newhall area 30 miles northwest of Los Angeles.

Superior Oil Company's K.C.L. 8, Section 11-30s-26e, was tested with a formation tester and found to be wet. The well is being cored ahead at 7151 feet in gray sand. Location is about five miles northeast of the Ten Section oil field and six miles southwest of the Fruitvale oil field.

Ohio Oil Company's K.C.L. E-1, Section 19-30s-26e, is being cored at 8665 feet in gray sand and shale. No oil or gas showings of importance have been found in this well. Location is about 1½ miles northwest from the discovery well, Shell Oil Company's K.C.L. 1.

Standard Oil Company's K.C. 10-1, Section 20-30s-26e, is being cored ahead at 8501 feet in gray sand. No oil or gas showings have been found to date. This project is located only 1 mile north of the discovery well and correlates about 450 feet lower.

CALIFORNIA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
DOMINGUEZ—		
Shell, Reyes 84	4080	7775
Union, Callender 47	310	8711
HUNTINGTON BEACH—		
Union, Brooks 9	65	4304
LONG BEACH—		
Davis Inv. Co., M & M 1	25	4370
C. F. Yunker & Associates No. 3	140	4615
MONTEBELLO—		
St. Helens Pet. Co., Monterey 22	70	3758
Monterey 23	65	3730
Universal Cons., Nutt 1-J	400	5875
RICHFIELD—		
Union, Chapman 36	220	3465
SANTA FE SPRINGS—		
Union, Bell 101	115	5415
LOS ANGELES COUNTY—		
K. L. Lytle, McKenna 1	*	7352
KERN FRONT—		
Bishop Oil Co., No. 11	190	2038
MIDWAY-SUNSET—		
Quality Oil Co., Cypress 11	300	2320
Z. P. 4	650	2202
Union, Midway Northern 1	105	1936
MOUNTAIN VIEW—		
Sheldon Oil Co's Ross 2	200	5685
MOUNT POSO—		
Shell, Vedder 30	395	1675
ROUND MOUNTAIN—		
Shell, Freeman 11	45	1720
Olcese One 7	90	1840
Olcese One 8	210	2070
KERN FRONT—		
Seskayden Oil Co., Sesnon 1	80	2897
SAN MIGUELITO—		
C. C. M. Oil Co., Hobson B-9	250	4704
PIRU—		
Pacific Western, Tehmescal 6	310	2396
KERN COUNTY—		
Associated, Williamson 1	*	7856
TEHAMA COUNTY—		
Northern Counties Pet. Co., Ewers-Mooney 1	*	8260

*Failures; †Junked; ¶Million cu. ft. gas.

YIELD INCREASED

45 barrels hourly when Michigan test deepens

WEEKLY STAFF REPORT

Mt. Pleasant, Mich.—Deepened approximately 21 feet to 2506 feet, McClanahan Oil Company's Seiginfus 1, Section 3-20n-4e, Arenac County, increased 10 barrels an hour to an average of 45 barrels hourly and showed a peak production of 53 barrels an hour.

Operators announced intention to drill the Clayton township discovery well another 50 feet, but the drillers were having trouble making hole with the light five-inch tools now in the hole.

Meanwhile, interest has swung to the same company's Mee 1, Section 11-20n-4e (NE SE SW), approximately 1¼ miles southeast of the discovery, which was shut down for five-inch casing the first of the week. Formations on the Mee, logging within six feet of the discovery on cable measurements, were reported.

New starts in the Clayton district this week brought the total to five active tests, four moving in, and 10 other locations some of which will be started or dropped, pending success of the Mee 1 in Section 11.

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MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLINTON COUNTY—		
Petroleum Exploration Co.'s Jensen 1, s½ ne se, sec 6-5n-1w	*	880
Stork Oil Co.'s Parker 1, sw sw ne 25-7n-1w	*	3400
GRATIOT COUNTY—		
Wiser Oil Co.'s Brown 1, c ne ne, 10-10n-4w	¶25½	1010
MIDLAND COUNTY—		
Pure Oil Co.'s Bond-Root 13, c s ne se 3-13n-2w	110	3460
Bond C 6, s½ se nw 12-13n-2w	140	3436
Reed B 4, n½ sw sw, 1-13n-2w	60	3444
Bond A 9, n½ nw nw, 7-13n-1w	170	3445
MONROE COUNTY—		
Ross & Vale's LaVliet 1, sw nw se, 19-6s-6e	60	2170
MONTCALM COUNTY—		
Jetter Oil Co.'s Arntz 1, nw se se, 1-9n-6w	*	3141
Mammoth Production Co.'s Strait B 5, ne se se 34-11n-5w	*	3215
OGEMAW COUNTY—		
Kerr & Nicholas' Fisk Bros. 2, nw sw sw 27-22n-2e	60	2710
Weber Oil Co.'s Sutherland 1, ne nw se, 35-22n-2e	35	2690
SAGINAW COUNTY—		
Jaenickie Oil Co.'s Moulton 1, sw nw sw 31-12n-2e	*	3500

*Failures; †Junked; ¶Million cu. ft. gas.

LOWER TAX HELPS

Gasoline sales break all records in New York

New York.—Following the reduction of the state gasoline sales tax to three cents from four cents per gallon on July 1, gasoline sales in New York state during July and August broke all previous records.

Records of the American Petroleum Institute, compiled from official reports, show that gasoline sales in July, the first month of the lower tax, totaled 185,871,000 gallons, or 12.2 percent over July, 1935. Sales in August, the second month of the reduced tax, were 178,466,000 gallons, or nearly five percent over August, 1935, which was the month of peak consumption last year.

During the first six months of 1936, gasoline consumption in New York state was only four percent greater than during the first six months of 1935, as compared with an increase of approximately 10 percent for the whole country. The greatly increased sales of gasoline following the reduction of the tax rate brought the average gain in consumption for the first eight months of 1936 approximately to six percent above the same period of last year.

EASTERN FIELDS

WEEKLY STAFF REPORT

Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEN COUNTY—		
Davis & Jones, Charles C. Post 2	*	3215
ASHLAND COUNTY—		
Ohio Fuel Gas Co., W. W. Strong 1	¶	2332
ATHENS COUNTY—		
D. T. Orndoff, G. L. Bryson 1	¶	1381
Joseph Gage, State of Ohio 1	¶	742
Ohio Fuel Gas Co., Anna P. Williams 1	¶	1595
George D. Tedrow 1	*	1438
Laura Mohler 1	¶	1701
Gibson & Co., Fred Laughlin 3	¶	860
A. D. Townsend, John H. Hartley 2	¶	1672
BELMONT COUNTY—		
James Swane, Fred A. Graves 2	¶	707
COSHOCTON COUNTY—		
Hulse-Kuntze, J. W. Mosholder 3	60	3184
FAIRFIELD COUNTY—		
City Natural Gas Works, L. J. Knecht 2	¶	2252
D. E. Bauer 2	¶	
Bishop, Blum 2	4	1968
GUERNSEY COUNTY—		
Cambridge Glass Co., Minnie M. Beers 1	4	1312
HANCOCK COUNTY—		
Forest Gas Co., John Stevens 2	¶	1355
Arlington Gas Co., Ida Hickle 1	¶	1324
HARDIN COUNTY—		
Forest Gas Co., John Stevens 1	¶	1243
HOCKING COUNTY—		
Griffin Producing Co., Abram Mohler 2	¶	2939
Nelson Coal & Land Co, Kachelmacher Estate 5	¶	1185
Kelch Bros., Frank Edwards 1	¶	1565
HURON COUNTY—		
McCorkill & Co. Mary A Park 1	¶	823
KNOX COUNTY—		
Ohio Fuel Gas Co., James Underwood 1	¶	3113
Leanard Strickeel 1	¶	2963
LAWRENCE COUNTY—		
Shale Development Co., First Huntington Bank 1	¶	2415
LICKING COUNTY—		
E. H. Everett, Ella Gill 4	38	2887
Preston Oil Co., Joe Broomfield 1	11	757
Pure Oil Co., B. G. Nethes 3	45	3232
LORAIN COUNTY—		
Ohio Fuel Gas Co., Melvin Barrows 1	¶	2318
MEIGS COUNTY—		
Cora Ater & Co., A. M. Bengel 1	¶	
Ohio Fuel Gas Co., Lubert Theiss 1	¶	1986
D. Frank Douglass 1	¶	1633
Electa Titus 1	*	1686
Lewis Wickline 2	¶	1971
C. A. Cody, Ella F. Douglass 2	¶	1573
Goodfellows Co., Elias Jividen 9	¶	1971
MONROE COUNTY—		
A. H. Anderson & Co., Wm. Mahoney 2	¶	1489
MORGAN COUNTY—		
Ohio Fuel Gas Co., D. H. Phelps 2	*	
MUSKINGUM COUNTY—		
Ohio Fuel Gas Co., Albert Porter 1	*	4039
Hope Construction & Refining Co., Almeda Butler 3	78	3225
NOBLE COUNTY—		
Chaseville O. & Gas., David W. Corwin 4	¶	1446
PERRY COUNTY—		
Mid-East Gas Co., W. R. Williams 1	¶	3202
SENECA COUNTY—		
O'Brien & Co., J. W. Ditterman 1	*	2190
STARK COUNTY—		
Ohio Fuel Gas Co., Amanda Smith 2	¶	4311
Irene Lingle 1	¶	4199
Phillip Neidict 1	¶	4159
Eliza Harmont 6	¶	4297
SUMMITT COUNTY—		
East Ohio Gas Co., A. & M. Wise 2	¶	4093
VINTON COUNTY—		
Kelch Bros., L. P. & M. Backus 5	½	842

Company, Well and Location	Init. Prod. Bbls.	Depth
WASHINGTON COUNTY—		
Hall Henning Co., J. W. Pryer 2..	5	1637
Beardmore Gas Co., Martha J. Kohn 1	*	1696
D. Ira Connelly, S. A. McKitrick 1.	3	1415
Hayes Ferguson, Moses N. Williamson 1	*	1050
Huntsman & Peters, R. E. & N. T. Holter 1	*	848
Gales, George T. Gales 1	2	869
Wes Harris, Samuel Knox 5	*	1197
Martin & Son, Ella Martin 1	2	405
WAYNE COUNTY—		
Mid-East Gas Co., S. A. Bowman 2.	¶	4023
WYANDOT COUNTY—		
Cherokee Gas Co., D. & E. Smalley 1	2	1427
WEST VIRGINIA		
BOONE COUNTY—		
O. B. Cunningham & Co., J. T. Ferrel 1	¶	1043
ELK DISTRICT—		
Hays Oil & Gas, John Judy Heirs 1.	¶	5174
FAYETTE COUNTY—		
Godfrey L. Cabot, Inc., Kanawha Garba Coal Co. 8	¶	2669
HANCOCK COUNTY—		
R. J. Braden & Co., Hewett Heirs 26	1	1024
JACKSON COUNTY—		
Mountain Supply, J. W. Kelley 3..	15	1655
KANAWHA COUNTY—		
United Carbon Co., George W. Facemyer 1	¶	4816
West Virginia Gas Co., C. M. & Lizzie Caldwell 3	¶	3936
MARSHALL COUNTY—		
Denver Oil & Gas Co., Mary C. Mohr 1	3	2758
MONONGALIA COUNTY—		
Carnegie Natural Gas, L. D. Boyles 1495	¶	2413
MONROE COUNTY—		
H. B. Walker & Co., Louisa Short 1	¶	1490
PLEASANTS COUNTY—		
Maxwell Oil & Gas Co., Z. T. Jones 1	3	1628
RITCHIE COUNTY—		
Chalmers Oil Co., Benjamine McGinnis 17	15	1915
Moats Richards, Georgiett Ross 2...	¶	1995
Carnegie Natural Gas, Ferrebee Heirs 1	¶	1800
ROANE COUNTY—		
L. C. Young & Co., Herbert White & Co. 1	¶	1699
I. N. Hawkins 1	*	1893
WASHINGTON COUNTY—		
G. T. Gale & Co., G. T. Gale Lot 1	4	952
Alford McKitrick, McKitrick 1	2	1420
WETZEL COUNTY—		
Maxon Oil & Gas Co., Essie L. Bartrug 3	10	2214
WOOD COUNTY—		
Chas. Smith, Tim McAtee 11	2	1287
B. L. Binge & Co., Peter Elliott 1.	2	1616
INDIANA		
DAVIESS COUNTY—		
Morbald Dev. Co., Geo. F. O'Brien 1	¶	633
DECATUR COUNTY—		
Tom Caster, Tom Caster 1	¶	878
JOHNSON COUNTY—		
J. L. Hassett & Co., Dewight Lagrange 1	*	492
KNOX COUNTY—		
Kentucky Nat. Gas Corp., John P. Beard Co. 1	¶	575
POSEY COUNTY—		
Theresa Niemuer, K. R. Bixby Trustee 1	¶	406
KENTUCKY		
McLEAN COUNTY—		
Clark Snyder, E. Price 1	*	
B. B. Oil Co., Strand Farm 1	*	
Sunflower Oil Co., Judge Newton 1.	*	
Major Oil Co., First Baptist Church Lot 1	*	
Kentucky Producing Co., Hicks Lot 1	35	
Troy Refining Co., H. L. Downs 1.	35	
OHIO COUNTY—		
Petroleum Exploration Co., R. H. Graham 13	35	
Lowman & Co., Guy Richards 3...	*	

*Failures; †Junked; ¶Million cu. ft. gas.

STATE AIDS SEARCH

Mt. Pleasant, Mich.—The State Administrative Board has approved a $2500 expenditure to be matched with an equal amount of federal money for experimentation in southern Michigan with electrical resistivity for determining structural highs.

THE OIL WEEKLY REPORT ON IMPORTANT *Wildcat Tests*

ALABAMA

HOUSTON COUNTY—Rice O&G Co.'s Oakley Est. 2, 9-3n-29e, elev 191 ft, installing heavier rig, td 4002 ft.

MOBILE COUNTY—Grand Bayou O&G Co.'s J. A. Stafford 1, 24-7s-3w, lcn.

ARKANSAS

BRADLEY COUNTY—Phillips Pet. Co.'s & Joe Modisett's Brown 1, ne nw 28-16-12, elev 90 ft, top red beds 2829 ft, dr 4703 ft.

COLUMBIA COUNTY—J. C. Buckbee, Tr.'s Cumbie 1, 17-17-18, dr 3310 ft. King Oil Corp.'s Fullenwider & Kitchen 2, se nw 13-17-22, top Nacatosh 1915 ft, dr 3425 ft.

CLEVELAND COUNTY—Diffie et al's L. C. Ross 1, sw ne 1-11-11, sd 100 ft. R. L. Saxon's L. C. Tipton 1, sw ne 13-11-12, elev 207.4 ft, rur. J. R. Lockhart's I. Robertson 1, sw se 36-10-11, dr 2289 ft.

DALLAS COUNTY—Walter Lown's Atkinson 1, ne nw se 7-10-13, coring 1624 ft, chalk.

GRANT COUNTY—Wallace & Staples' W. F. Davis 1, se se nw 23-6-15, rur.

HEMPSTEAD COUNTY—H. D. Easton et al's Conway-Tiller 2, sw sw 34-12-27, elev 251 ft, arr deepen td 3005 ft. Root Pet Co.'s Jones 1, ne sw ne 16-13-32, rur.

LITTLE RIVER COUNTY—M. E. Sanderson's Penning 1, ne ne sw 6-13-30, sd 168 ft. Joe Strahan's Dierks Lbr. Co. 1, 21-12-28, 10-in csg 40 ft, sd 600 ft.

MILLER COUNTY—Joiner et al's (Odell Hinson), Montana Realty Co. 1, ne nw nw 3-17-28, cemtd 7-in csg 5270 ft, woc td 5278 ft (corrected depth). C. V. Lenz's Dale 7, 24-15-26, cored sand so 4210-16 ft, setting csg td 4227 ft.

NEVADA COUNTY—Benedum & Trees Oil Co.'s Groves 1, sw sw 10-14-20, elev 353 ft, pumping oil & water 30 bbls hr, td 2287 ft. Groves 2, woc surf csg. Groves 3, 10-14-20 showed oil of 13 gravity in ds test 1200-31 ft, cemtd 6⅝-in csg 1217 ft, woc td 1231 ft. Block 1, ne ne se 9-14-20, mim. C. C. Fincher 1, nw sw ne 10-14-20, rur. Jno. R. Lewis' Wm. Haynie 1, sw sw ne 10-14-20, rur. L. M. Glascoe's Ritchie 1, nw se 10-14-20, rur. Ritchie 2, 3, 4, lcns. Steel & Warnack's Wm. Haynie 1, se se nw 6-14-21, sd 200 ft.

POPE COUNTY—Ark.-La. Gas Co.'s L. C. Smith 1, sw sw se 10-8n-21w, 13⅜-in csg 1997 ft, dr 3038 ft (CT).

CALIFORNIA

FRESNO COUNTY

CANTUA CREEK—Mohawk Pet Co.'s Langer 1, 30-16-15, td 4950 ft, at last report. Western Gulf's S. P. Land Co 3, 3-17-15, td 8531 ft, recovered dr pipe, redr.

KERN COUNTY

LERDO—Arkelo Pet Co's Arkelo 1, 23-28-26, dr fractured shale oil in fractures 6255 ft.

LOST HILLS—Associated's No. 6-L-3, 2-26-20, td 2253 ft, plug 1900 ft, to test on pump; Williamson 12-A-3, 11-26-20, sd 1675 ft. Lincoln Pet Co's No. 1, 12-26-20, td 1846 ft, co; Theta 2, 12-26-20, sd 2830 ft. Standard's United 2, 2-26-20, bldg rig. Texas Co's Theta 1, 11-26-20, td 2037 ft, plug 1958 ft, testing on pump, all water.

RIO BRAVO—Associated's K.C.L. 1, 30-29-25, td 7683 ft, co r to 7491 ft.

SO. MARICOPA—E. A. Bender's Robinson 1, 14-10-23, td 1235 ft, plug 750 ft, sd.

GREENFIELD — British American's Smith 1-A, 21-31-27, rur.

SAN EMIDIO—I. L. Burch's No. 1, 3-10-23, sd 1325 ft.

MOUNT POSO—Cal Coast Oil Co's No. 1, 36-26-27, dr brown shale 2531 ft.

WASCO—Continental Oil Co's K.C.L. A-1, 8-27-24, dr shale and sand 5948 ft.

DEVIL'S DEN—Den Pet Co's Bates 1, 20-25-19, td 1317 ft, last report. H. C. and E. A. Long's No. 1, 20-25-19, rig. Lube Oil Co's No. 1, 2-25-18, rig.

JASMINE—Doyle Pet Corp's Quinn 1, 15-25-27, td 2956 ft, plug 2882 ft, pumped off, bailing and co.

EAST EDISON—East Edison Oil Co's Tejon 1, 21-30-30, td 1130 ft, bailing water, trace of oil.

ARVIN—General Pet Corp's Arvin 1, 26-31-29, td 7365 ft, ran formation tester, recovered 1170 ft oil and mud. Superior Oil Co's No. 1, 26-31-29, lcn.

GRAPEVINE—Hall-Baker Co's No. T-1, 12-10-19, spud Nov. 16, dr. 99 Oil Co's Tejon 1, 5-10-19, spud and sd. Ohio Oil Co's Title Ins. D-1, 21-11-19, dr sandy shale 5322 ft, to run formation tester. Reserve Oil Gas Co's Ritchie 33-1, td 6030 ft, plug 5050 ft, blank liner wet, to recement; Tejon 33-1, 33-11-19, td 4505 ft, plug 4414 ft, standing plugged.

MOUNTAIN VIEW—Mohawk Pet Co's Earl Fruit 2, 10-31-29, td 6164 ft, wocs 6⅝ in at 6070 ft; Earl Fruit 3, rig. Shell's Greer 1, 15-31-29, td 6171 ft, plug 6013 ft, reperforated 4 in liner at 6030 to 6080 ft, cemented through perforations, ran tubing, swabbing.

KERN FRONT—Seskayden Oil Co's Sesnon 2, 17-28-27, rur.

TEN SECTION—Standard's K.C. 11-1, 19-29-26, dr sandy shale 7633 ft. Super or Oil Co's K.C.L. 8, 11-30-26, td 7151 ft in gray sand, tested wet.

MISCELLANEOUS

ALAMEDA COUNTY—Seaboard Oil Corp's Johnson 1, 13-3-3, dr sand and shale 5590 ft.

HUMBOLDT COUNTY—Texas Co's Eureka 2, 22-3-1, dr shale 6053 ft.

KING'S COUNTY—Associated's Avenal 1, 35-23-17, td 3110 ft, plug 2800 ft, abnd; Avenal 2, 35-23-17, lcn. A. S. Clare's Laymance 1, 20-20-22, lcn. I. P. Herndall & Associates' Spreckles 1, 16-24-18, td 4201 ft, plug 1600 ft, sd, to drop from report. Milheim Oil Corp's Resources 1, 20-22-22, sd 5810 ft.

SAN BENITO COUNTY—Associated's Murphy Ranch 1, 5-12-4, td 4784 ft, fsh.

SAN JOAQUIN COUNTY—Standard's McDonald Island 1, 19-2-5, td 5260 ft, spud Nov. 1,

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
b.s.—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so&g—*show oil and gas.*
fsg—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

ran formation tester, recovered 3600 ft fluid, 600 ft mud and 3000 ft salt water.

SOLANO COUNTY—Amerada Pet Corp's Hamilton 1, 26-4-2, dr hard shale 5310 ft; Hoppe 1, 22-4-2, sd 7029 ft.

SUTTER COUNTY—Buttes Oilfields' No. 4, 2-15-1, dr sandy shale 5300 ft.

TEHAMA COUNTY — Northern Counties Pet Co's Ewers-Mooney 1, 25-24-3, td 8260 ft, abnd.

TULARE COUNTY—J. W. Alford's Williams 1, 28-16-23, sd 1023 ft. E. P. Jennings' No. 1, 4-24-23, sd 1830 ft. Trico Oil & Gas Co's Calif Western 1, 2-23-23, sd 1800 ft; Callison 1, 27-21-25, sd 3377 ft.

MONTEREY COUNTY—Amil A. Anderson's No. 1, 15-24-14, rig. Shell's Branch 2, 34-24-10, dr shale 4630 ft Texas Co's Dunphy 1, 30-19-7, bldg road.

SAN LUIS OBISPO COUNTY—Cholame Syn's Jack 2, 10-25-15, td 3648 ft, to test. Archie Mayes' No. 1 (oceano area) technical spud. R. W. McBurney's No. 1, 23-32-22, dr shale 2100 ft. Union Oil's Porter 1, 22-32-15, dr shale and sand 3132 ft. United Foreign Oil Co's Panorama 1, 2-32-21, dr sand 2264 ft.

SANTA BARBARA COUNTY

EL CAPITAN—Associated's Edwards 1, 2-4-30, dr red Sespe shale streaks sand 1650 ft.

GATO RIDGE AREA — Barnsdall's Tognozzini 2, dr shale 1640 ft. Petrol Corp's Tognozzini 1, 9-8-32, lcn.

SUMMERLAND—Julias Ditzman's Fithian 1, 8-4-25, td 1025 ft, to dr deeper.

LOMPOC—O. C. Field's Santa Rita 1, 11-7-33, sd 2064 ft. Top Row Oil Co's Spanne 1, 6N-35W, td 1310 ft, rur to dr deeper.

BETTERAVIA—E. H. Moore's Union Sugar A-1, 25-10-35, td 8020 ft, to set 6⅝ in at 7676 ft.

POINT CONCEPTION—101 Oil Co's Hollister 1, 35-5-33, spud Nov. 7, dr.

CASMALIA AREA—Todos Santos Oil Co's No. 1, td 2365 ft, bailing mud and a little oil.

VENTURA COUNTY

OXNARD—Vaca Explor Co's Calif Lands 1, 6-1-21, td 2830 ft, plug 2150 ft, bailing heavy oil.

VENTURA—Ventura Explor Co's Sexton 1, 30-3-22, sd 9525 ft.

SESPE CREEK—Wasibi Oil Co's Speik 1, 35-5-19, dr hard shale 1190 ft.

SOUTHERN CALIFORNIA

NEWHALL—Barnsdall's Rancho S. F. 1, 26-4-17, dr hard shale streaks sand 511 ft. Holbrook Pet Co's Newhall Land & F Co 1, 28-4-16, dr hard sand 3888 ft. Yant Pet Corp's Yant 5, 1-3-16, td 2734 ft, pumping 25 bbls oil, clean.

LYNWOOD—Calizoo Oil Co's Saulque 1, 9-3-13, td 3920 ft. Milling on junk.

NO. LONG BEACH—Geo. L. Clayton's Clayton 1, 32-3-12, td 800 ft, wocs 11¾ in on bottom.

GARDENA—Crude Oil Dr. Co's No. 1, 31-3-13, td 5490 ft, plug 865 ft, sd. Standard's Bodger 1, 22-3-14, dr shale streaks sand 7214 ft. Universal Cons. Oil Co's Carrell 1, 36-3-14, dr shale and sand 3818 ft. West American Oil Co's Dominguez Est 1, 5-4-13, td 6595 ft, plug 720 ft, redr at 5250 ft.

EAST WHITTIER—Drillers' No. 1, 22-2-11, rur.

WALNUT—Julian & Chriswell's No. 1, 5-2-9, dr hard sand 620 ft.

EL NIDO—K. L. Lystle's McKenna 1, 33-3-14, td 7352 ft, plug 4317 ft, abnd.

TORRANCE — Oliver McDowell's No. 1, 35-3-14, sd 7210 ft.

ASCOT SPEEDWAY—Republic Pet Co's Jordan 1, 24-1-13, td 1318 ft, to set casing.

DAVIDSON CITY—Shell's Flood Control 1, 11-4-13, sd 4307 ft.

ROSECRANS—Shell's McKinely 1, 20-3-13, rig.

HAWTHORNE — Signal Finance Corp's Woods 1, 10-3-14, td 9326 ft, to test on swab.

FOX HILLS—Superior Oil Co's Inglewood Ext 1, 25-2-15, dr shale 8734 ft.

ORANGE COUNTY—Calif Eastern Oil Co's Verde 1, 31-3-9, td 4750 ft, redr at 4670 ft. Mesa Oil Co's Mesa 1, 29-6-10, dr shale streaks sand 2385 ft. West Coast Ref Co's Yorba 1, 25-3-9, td 2128 ft, redr tough shale 1905 ft.

SAN BERNARDINO COUNTY—Equitable Pet Explor Co's No. 1, 11-10-5, td 3032 ft, in oil sand, ran tubing, swabbing. Tehama Pet Co's Kraemer-Backs 2, 33-2-8, dr hard shale 1220 ft; Pellissier 1, 4-3-8, dr hard shale 1308 ft.

COLORADO

KIOWA COUNTY—Gulf Oil Corporation's Risser-Union Pacific 1, csw ne 1-17s-50w, has cemented 127 ft of 20 in csg and is spd ahead.

PUEBLO COUNTY — Phillips Petroleum Co.'s Andover-Century 1, ne sw nw 26-18s-65w, coring at 1025 ft.

PARK COUNTY — South Park Oil Co.'s State 1, se se sw 16-11s-75w, coring at 5320 ft to determine altitude of beds. Company's Lemarr 1, ne ne se 34-11s-75w, dr in shale at 2520 ft with 10¾ in csg at 2492 ft.

WELD COUNTY — Continental Oil Co.'s Briggs 2, cne sw 13-6n-61w, is down 6744 ft and has 3400 ft of water in hole.

UTAH

GRAND COUNTY—Columbia Crude Corporation's Rath-Government 1, ne sw ne 12-25s-20e, dr 1725 ft. Utah-Southern Oil Co.'s Hyde-Government 1, s nw nw 30-22s-2e, dr 5679 ft.

EMERY COUNTY—California Co.'s Newton S. Palm 1, sw 22-23s-11e, sd 2285 ft. Well is making 75 bbls water daily from total depth and operators may skid rig and start new hole using water from the Palm 1 well for drilling purposes.

SUMMITT COUNTY—Longwall Petroleum Co.'s 1, se sw se 35-3n-5e, dr 1951 ft.

UTAH COUNTY—Diamond Fork Oil Co.'s 4, s se nw 16-8-5e, dr 4012 ft.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, reaming to bottom, td 5645 ft, lime & sand.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Bank of Hilliard 1, nw ne se 19-4n-24e, elev 110 ft, re-setting csg 750 ft.

POLK COUNTY—Edw. A. Hill's Polk County Lbr. Co. 1, nw ne 32-25s-25e, elev 90 ft, dk.

KANSAS

BARBER COUNTY—Sinclair Prairie Oil Co.'s Gentry 1, ne ne ne 1-33s-15w, td 5529 ft. Pure Oil Co.'s Palmer 1, se ne sw 10-33s-10w, set 13-in csg 202 ft, woc.

BARTON COUNTY—Brouk et al's Keil 1, se se ne 11-16s-15w, testing. C. L. Price's Deutsch 1, nw nw ne 16-16s-13w, co 3153 ft. Minnehoma O&G Co.'s Smith 1, nw nw ne 20-18s-13w, set 15-in csg 93 ft, woc. Duee & Brouk's Baker 1, ne se sw 16-17s-13w, rig. Freehorn et al's Sooy 1, nw nw ne 27-18s-12w, rig. John Burton's Wendel 1, ne ne ne 13-19s-11w, co 555 ft.

BUTLER COUNTY — Simpson Oil Co.'s Deblem 1, sw sw sw 11-26s-6e, dr 3236 ft. Hutchinson O&G Co.'s Westfall 1-A, se sw se 13-27s-3w, td 3035 ft, sdo. Wixon et al's Coulter 1, nw sw ne 3-27s-7e, ru mach.

CHASE COUNTY—Hanna et al's Brothers 1, se se nw 25-20s-8w, br. Propp et al's Fromm 1, se se se 29-18s-9e, dr 2412 ft.

CLARK COUNTY—Olson Drlg. Co.'s Morrison 1, cse sw 17-32s-21w, pot 2358 bbls oil, 24 hrs, comp.

COWLEY COUNTY—Home Natural & McNish's Werner 2, se se sw 31-32s-6e, dr 2585 ft. Croft et al's Whitson 1, ne ne ne 20-33s-4e, ru. Wakefield et al's Tinker 1, nw nw se 26-32s-3e, set 10-in csg 1877 ft, co. Tom Palmer's Pierce 1, se se sw 14-31s-3e, mim. Austin & McKnabb's Wilson 1, ne ne se 20-32s-6e, mim. Simpson & Stanolind O&G Co.'s Weigle 1, sw sw ne 18-31s-6e, bldg rig.

EDWARDS COUNTY—Stanolind & Elwell's Donovan 1, cse se 14-25s-18w, set 5-in csg 4590 ft.

ELLIS COUNTY—Empire's Samuelson 1, ne ne sw 31-11s-16w, ur 5-in csg. Bridgeport Mach.'s Ubert 1, ne ne nw 12-13s-18w, dr cement. Trigg et al's Armbrister 1, se se sw 6-11s-19w, dr 2975 ft. Lario's Marshall 1, nw se ne 36-11s-18w, Pot. 795 bbls oil, 20 hrs, comp. Ted Kerr et al's Koblitz 1, se sw nw 23-12s-18w, dr 3315 ft. Glick & McMorrow's Staab 1, sw sw se 6-13s-17w, dr 3520 ft. Taylor et al's Emery 1, ne ne ne 23-14s-18w, 200 ft oih, 5½ hrs, td 3570 ft. Brouk et al's Jacobs 1, nw nw se 31-15s-16w, td 3476 ft, D & A. Murphy Oil Co.'s Wiesner 1, se se sw 12-14s-19w, ur 15-in csg 720 ft. Jones Bros. et al's Phillip 1, se se nw 9-15s-17w, set 15-in csg 417 ft, woc. Lario O&G Co.'s Cress 1, ne ne ne 13-11s-17w, set 12-in csg 969 ft, woc. Loomis & Etyner's O'Laughlin 1, se se nw 27-13s-18w, rot rig.

GRAHAM COUNTY—Nook & Young's Hills 1, nw se se 19-10s-21w, td 3974 ft, D & A.

GRANT COUNTY — Columbian Fuel Co.'s Gray 1, cse 3-29s-35w, co.

GREENWOOD COUNTY — Hale & Reese' Needles 1, ne sw nw 12-25s-10e, td 2135 ft, D & A. Estes et al's Edgar 1, nw nw se 1-28s-8e, ur 10-in csg 1165 ft. Scott et al's Pedroja 1, se ne se 6-26s-10e, flow 300 bbls oil, 48 hrs.

HARVEY COUNTY — Harburney Oil Co.'s Schragg 1, nw nw se 24-22s-3w, sd 3265 ft. Saco et al's Guthrie 1, ne ne nw 8-22s-2e, dr 1225 ft.

KEARNEY COUNTY—J. L. Murphy et al's Campbell 1, nw nw sw 32-25s-35w, td 2595 ft.

LOGAN COUNTY — Rosespring Drlg. Co.'s Wright 1, cse se 12-15s-35w, dr 1750 ft.

LYON COUNTY—Clyde Fred et al's Bruce 1, nw nw nw 13-18s-10e, ru mach.

MARION COUNTY—Western Kansas O & Ref. Co.'s Hauser 1, sw sw sw 19-19s-4e, dr 575 ft. Harwood Oil et al's Mott 1, ne ne ne 2-17s-4e, dr 2345 ft.

MITCHELL COUNTY—Geo. Siedhoff et al's Greiss 1, sw sw se 16-8s-10w, dr 90 ft.

NESS COUNTY—Newton Dev. Co.'s Tenny 1, nw nw se 19-18s-25w, dr 4320 ft.

PAWNEE COUNTY—Kessler & Their's Shea 1, ne ne ne 22-21s-17w, dr 2950 ft.

PRATT COUNTY—H. V. Elwell et al's Fay 1, nw nw se 15-27s-14w, dr by 3154 ft. I.T.I.O. and Olson's Bolt 1, cnw ne 5-29s-11w, td 4597 ft, D & A.

RENO COUNTY—Miller et al's Detter 1, ne se nw 28-22s-7w, ur 8-in csg 3420 ft. Pryor & Lockhart's Kerr 1, cnw 22-23s-8w, td 4152 ft, D & A. Foraker et al's Hiett 1, se sw ne 34-24s-4w, dr 3624 ft. Clyde Pulse et al's Payne 1, sw nw ne 4-22s-7w, sd 1940 ft. Inca Prod. Corp.'s Moore 1, cne ne 26-24s-3w, dr 2765 ft. Empire's Schrock 1, nw nw ne 22-24s-5w, woc 260 ft. Westgate-Greenland Oil Co.'s Fossey 1, sw sw se 12-22s-8w, dr 3110 ft.

RICE COUNTY—Carlock et al's Deweese 1, sw nw nw 32-20s-7w, td 3357½ ft, co. Shell Pet. Corp.'s Soenken 1-A, cnw 10-19s-9w, cor 3252 ft. Aylward et al's Johnson 1, nw nw ne 17-21s-7w, dr 1452 ft. I.T.I.O. Co.'s Fossey 1, sw sw ne 31-20s-10w, ru. Charles Pet. Corp.'s Speck 1, nw nw se 29-20s-8w, skid rig & spd.

ROOKS COUNTY—L.C.D. Drlg. Co.'s Westhusin 1, cne se 11-19s-17w, td 3243 ft. J. A. Shoemake's Stebbins 1, ne ne sw 26-7s-17w, testing. Buckner & Schoff's McConnell 1, ne ne ne 34-6s-18w, dr 1098 ft. Empire's Ham 1, sw nw nw 24-8s-19w, ur 10-in csg 2632 ft. Jarvis & Strickland's Hamel 1, se se sw 7-8s-20w, dr 1945 ft. Snowden & McSweeney's Hindman 1, ce½ nw 35-7s-17w, mim.

RUSH COUNTY—Ralph Wixton et al's Gorham Est. 1, nw nw sw 35-15s-16w, td 3514 ft, D & A. Sheedy et al's Bison 1, sw sw sw 35-16s-17w, dr 3697 ft. Schoenfeld & Kitch's Winget 1, se se se 15-16s-16w, dr 865 ft.

RUSSELL COUNTY — Hartman & Blair's Johnson 1, nw nw nw 11-13s-15w, woc. Empire O & Ref. Co.'s Frederick 1, se se se 18-15s-11w, ru. Equity Gas Co.'s Harbauk 1, nw ne sw 19-13s-12w, dr 250 ft.

SALINE COUNTY — James Brouk et al's Othelander 1, ne nw se 10-16s-13w, co.

SEDGWICK COUNTY—Lauck's McLean 1, csw se 1-27s-1w, co 4400 ft. R. J. Wallace et al's Sheer 1, sw sw sw 22-27s-3w, fsg 4165 ft. Cameron et al's Smith 1, sw se se 13-27s-2e, spd.

SEWARD COUNTY—Helmerich & Payne's Hyde 1, csw 14-31s-34w, rig.

SHERIDAN COUNTY—O. A. Roberts et al's Corrick 1, cnw 34-9s-26w, set 15-in csg 124 ft, woc.

SMITH COUNTY—Helmerich & Payne et al's Meyer 1, ne ne sw 10-5s-11w, dr 3485 ft.

STAFFORD COUNTY—Skelly's Kipp 1, se se ne 27-25s-14w, dr 4075 ft. C. E. Skiles et al's Leidigh 1, nw nw sw 21-22s-11w, dr 3085 ft. Empire's Jordan 1, sw sw nw 15-25s-14w, cor 3680 ft. Skiles et al's Hughes 1, sw sw sw 12-23s-12w, ru. Atlantic et al's Davis c-46 1, se se sw 32-23s-12w, sd 1975 ft. Lebow et al's Wolf 1, se sw nw 3-21s-12w, co 2335 ft.

SUMNER COUNTY — Rosespring's Rutter 1-A, cnw nw 21-33s-2e, dr 2900 ft. W. C. McBride & Olson's Kinlund 1, ne nw ne 24-34s-1e, cor. Empire's Hoffman 1, nw nw sw 27-34s-1e, dr 1790 ft. Graham et al's Dawson 1, nw nw nw 4-33s-2w, dr 1850 ft. Lario et al's Hall 1, nw sw nw 11-35s-1e, dr 100 ft.

TREGO COUNTY — York State Oil Co.'s Gugler 1, sw sw sw 36-12s-21w, set 5-in csg 3825 ft, sw 3 bbls oil per hr.

WOODSON COUNTY—Dunn & Lewis' Dawson 2, cne ne 27-26s-13e, dr 1100 ft. Dwyer et al's Wolf 1, ne ne sw 9-24s-14e, dr 1000 ft.

NORTH LOUISIANA

BIENVILLE PARISH—Lide, Greer et al's J. D. Smelley 1, se sw ne 13-16n-5w, rur. DeSoto O&G Co.'s (R. O. Roy) Dunn & Olsen 1, n½ nw 15-16n-10w, elev 259 ft, so in lime 3436 ft, massive anhydrite 3985-4217 ft, base stringer 4276-4301 ft, cored sw sand 4224-44 ft, cored porous oolitic lime 4456-62 ft tested 20 joints sw 4280-4462 ft in 10 minutes, sd 4462 ft. McDowell et al's Locke 1, ne nw ne 9-15n-9w, dr 900 ft Arkadelphia shale. Texas-Seaboard Oil Corp.'s McGee 1, 3-16n-6w, ow rur to deepen, old td 5905 ft.

BOSSIER PARISH — Ark. La. Gas Co.'s Davis 1, 8-17n-11w, rur; Potter 1, 8-17n-11w, dk. United Gas' Roos 1, 23-17n-12w, si for gauge, td 5209 ft; Skannal G-1, se ne 22-17n-12w, 9⅝ in csg 3255 ft, elev 187 ft, massive anhydrite 3935-4160 ft, base stringer anhydrite 4239 ft, core oolitic lime 4420 ft.

CADDO PARISH—Prairie River Oil Synd.'s Hutchinson 1, sw sw 15-15n-12w, elev 152 ft, top Travis Peak 5845 ft, sd 7396 ft. Ferguson & Co.'s Huckabay 1, 22-22n-16w, dk. Gulf's E. P. Hatcher 1, 11-17n-15w, elev 269 ft, top Travis Peak 5998 ft, dr 7025 ft, hd gray shale.

CLAIBORNE PARISH—E. T. Oakes' Patton Est. 2, ne ne 1-20n-5w, elev 357 ft, 7-in csg 5007 ft, cored sw sand 5210-22 ft, coring 5335 ft. Sugar Creek Synd.'s Darrett 2, se sw 31-20n-5w, 7-in csg 5480 ft, pb to 5703 ft from td of 8616 ft, gauged est 12 mil ft wet gas, casing pressure and tubing pressure 1500 lbs., wo gauge, old td 8616 ft; Taylor 1, 1-19n-5w, top stringer anhydrite 4032 ft, top massive andrite 4272 ft, top Travis Peak, 5702 ft, dry in drill stem test 5718-5809 ft, dr 5880 ft. Max Hirsch et al's C. O. Ferguson 1, nw sw 29-22n-6w, dk.

CATAHOULA PARISH—C. P. Brown's T. J. Chisum 1, 19-10n-8e, lcn.

DE SOTO PARISH—Sundby et al's Garland 1, se nw 7-14n-14w, elev 300 ft, base Annona chalk 2095 ft, dr 2502 ft, sandy shale. Kamon et al's Rascoe 1, se nw 14-13n-13w, 7-in csg

1092 ft, top chalk 1625 ft, acidized, pumped little oil, arr abn, td 1840 ft. Julian-Igoe Synd.'s Hallie Smith 1, se se 31-14n-15w, 12½ in csg 321 ft. Grogan et al's Ramsey 1, 36-11n-11w, fsg 1780 ft. Sanders et al's L. N. Allison 1, nec 17-14n-13w, mir. R. C. Payne's Harris 1, 11-13n-14w, coring sand 2916 ft.

FRANKLIN PARISH—Sherrouse & Snyder's Kimble 1, ne se sw 36-12n-8e, elev 65 ft, spd 12½ in csg 250 ft, base Jackson 684 ft, sg and so 1500 ft. Minden, sd for fuel 1750 ft. S. C. Jensen's Bailey 1, c se nw 12-11n-6e, arr pb, td 2285 ft.

NATCHITOCHES PARISH — Natchitoches Oil Co.'s J. S. Simpson 1, 12-7n-7w, sd 1350 ft shale. Lent et al's Locke 1, se sw 26-9n-9w, sd 30 ft. Union Pet. Co.'s DeBlieux 2, 83-10n-7w, sd 3951 ft chalk. A. J. Williams' Coats 1, 31-10n-10w, rog.

RED RIVER PARISH — Hunter et al's Long-Bell Lbr. Co. 1, ne ne 19-13n-9w, 7-in csg 3696 ft, mo of csg, coring 3707 ft, old td 3734 ft.

RICHLAND PARISH—Gulf's R. R. Rhymes 15, nw se ne 32-17n-6e, elev 77 ft, top anhydrite 2936 ft, base red beds 6380 ft, cemtd 7-in csg 8040 ft, woc, td 8113 ft, red sand.

SABINE PARISH—Earl F. Fox's L. B. Blankenship 1, 13-9n-12w, mim. Whitehurst et al's Whitney Corp. 1, c nw ne 8-9n-13w, reconditioning hole, td 5503 ft.

WEBSTER PARISH—Ohio Oil Co.'s Bodcaw Lbr. Co. 1, c ne se 28-21n-10w, elev 234.8 ft, top anhydrite stringer 3969 ft, top massive anhydrite 4225 ft, base anhydrite stringer 4546 ft, dr 7270 ft, hd sand rock; R. M. Coyle 1, c ne se 22-21n-10w, elev 215.8 ft, massive anhydrite 4119-4359 ft, dr 7164 ft. United's Nixon 1, 22-21n-10w, elev 230 ft, top massive anhydrite 4195 ft, top Travis Peak 5585 ft, fsg ds 6796 ft. C. V. Davis 2, c nw nw 23-21n-10w, dr 6838 ft. Magnolia's Cox 1, 23-21n-10w, cemtd 9⅝ in csg 6477 ft, dr 6528 ft. R. W. Norton's Fee 1, 27-21n-10w, mim. Woodley Pet. Co.'s L. C. Cox 1, 28-21n-10w, top massive anhydrite 4144 ft, dr 4440 ft. Seaboard Oil Corp.'s Cotton Valley L&T Co. 1, nw sw 35-22n-10w, elev 200 ft, 20-in csg 262 ft, 15 in csg 1237 ft, massive anhydrite 4530-4735 ft, lower anhydrite 4802-26 ft, cored 4840-77 ft, no recovery, tested dry in ds test 4835-77 ft, top red beds 3340 ft, top anhydrite stringer 4310 ft, arr core, td 4877 ft. Tidewater Oil Co.'s L. Pipes 1, 10-18n-10w, 13 in csg 1250 ft, top Midway 1231 ft, top calcareous Midway 1308 ft, top Arkadelphia 1471 ft, top Nacatosh 1535 ft, cored sw sand 1562-79 ft, coring 1910 shale. Standard of La.'s Fudicker 1, se nw nw 2-17n-9w, woc 277 ft.

WINN PARISH—C. W. Cline's Collingsworth Hrs. 1, se se 14-10n-6w, dk.

SOUTH LOUISIANA

ACADIA PARISH—Humble's Nordyke 1, Ebenezer prospect, 23-10s-1e, dr gravel 911 ft. Superior Oil Prod. Co.'s Savoy 1, Bayou Mallet area, 47-7s-1e, dk.

AVOYELLES PARISH — Coastal Minerals Dev. Co.'s Haas 1, 25-2n-3e, lcn.

CALCASIEU PARISH—Union Sulphur's M. P. Irwin 1, se of Lake Charles, 10-10s-8w, spudded.

CAMERON PARISH — Magnolia's School Land 1, Johnson Bayou prospect, 16-15s-14w, dr shale 9156 ft; same operator's R. Le Bleau 1, Big Lake area, 13-12s-8w, dr shale 8148 ft. Pure's State 1, Mallard Bay prospect, 22-13s-3w, dr shale 6349 ft.

EAST BATON ROUGE PARISH—Cavalier Oil Co.'s Vignes 1, ne of Hope Villa, 40-8s-2e, sd 6623 ft. Louisiana Crusaders Oil Co.'s L. S. U. 1, University Block, 67-7s-1w, woc 1100 ft.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Peignuer 409, Jefferson Lake, 12s-5e, no report. Texas Co.'s State 2, Fausse Point area, 35-11s-8e, running csg 6440 ft; same operator's State Vermilion Bay 1, in Vermilion Bay, 16s-5e, dr sand and lime 9209 ft.

IBERVILLE PARISH—Humble's Wilbert 1, Bayou Blue area, 67-9s-11e, dr shale 3484 ft.

JEFFERSON PARISH — Triangle Oil Co.'s Carroll 1, 125-12s-11e, dr shale 1670 ft.

JEFFERSON DAVIS PARISH — Shell's Sturdevant 1, South Roanoke prospect, 25-10s-4w, fsh 9749 ft.

LAFOURCHE PARISH—Wm. Helis' City of New Orleans 1, Marchland prospect, 19-23s-23e, dr sand 4757 ft. Pan American's Harange 1, Valentine prospect, 7-17s-20e, dr 75 ft sand and gravel.

PLAQUEMINES PARISH—Gulf's State 1, in Bay Adams, 32-19s-28e, dr shale 2106 ft. Tide Water's Manhatten Fruit Co. 2, Venice dome, 26-21s-30e, dr hard sand 4231 ft.

ST. BERNARD PARISH — Gulf's State 1, Lake Lery area, 28-14s-14e, dr shale 2197 ft.

ST. JAMES PARISH—Shell's Colonial Sugar 2, Hester prospect, 5-12s-5e, dr sandy lime 7701 ft.

ST. LANDRY PARISH—Stanley Thompson's Lewis 1, ne of Port Barre, 29-5s-6e, mixing mud 4226 ft. Superior Oil Producing Co.'s A. Savoie 1, ne of Bosco, 26-8s-2e, dr shale 7809 ft.

ST. MARTIN PARISH—Shell's Hefea Land Co. 1, Arnaudville area, 38-8s-5e, woc 3738 ft. Texas Co.'s State 3, Lake Mongouloi prospect, 14-10s-9e, lcn.

ST. MARY PARISH — Texas Co.'s Bayou Sale 1, Wax Lake prospect, 40-17s-9e, fsh 8798 ft.

TERREBONNE PARISH—Humble's Elender 1, Houma gas field, 23-19s-19e, woc 8235 ft. Shell's Realty Operators 1-B, 11 mi w of Houma, 18-17s-15e, ru.

VERMILION PARISH—Continental's Hebert 1, Abbeville prospect, 20-12s-3e, dr shale 11,460 ft in sdtr hole. Stanolind's Fred Stovall 1, South Abbeville or Intercoastal prospect, 89-14s-3e, dr shale and shells 7923 ft.

MICHIGAN

ARENAC COUNTY—McClanahan Oil Co.'s Mee 1, sec 11-20n-4e, csg 5-in, 2460 ft. Central Drilling Co.'s Fisk 1, sec 16-19n-4e, dr. 2000 ft. American Drilling Co.'s Mutch 1, sw ne sw, sec 14-20n-4e, rig. Petroleum Corporation's State 1, se ne ne, sec 32-20n-5e, loc. Hagan & Wright's Soburay 1, sec 12-17n-4&5e, loc.

CLARE COUNTY—McClanahan Oil Co.'s Robinson 1, sec 31-17n-4w, dr 1500 ft. Wittmer Oil Co.'s Musgrove Sales 1, sec 15-24n-1w, dr 990 ft. Sun Oil Co.'s Campbell 1, sec 12-19n-3w, dr 370 ft.

CLINTON COUNTY—St. Louis Pipe & supply Co.'s Harris 1, sec 14-7n-2w, so 2760 ft, sd.

GLADWIN COUNTY—Muskegon Development Co.'s Wineman 1, sec 33-18n-1e, sd 3536 ft.

GRATIOT COUNTY—Ithaca Exploration Co.'s Hart 1, sec 10-10n-3w, dr 3200 ft. Cartier Oil Co.'s McCoskey 1, sec 23-11n-2w, dr 3100 ft.

HILLSDALE COUNTY—Jacob Beck's Fee 1, sec 16-6s-3w, sd 2700 ft. H. H. Heinig's Daley 1, sec 10-7s-4w, rig.

HURON COUNTY—C. W. Teater's Keller 1, sec 27-16n-11e, dr 200 ft.

ISABELLA COUNTY—Michigan Cities' Bacome 1, sec 19-13n-4w, dr 1600 ft. Mountain Oil & Gas Co.'s Thompson 1, sec 17-15n-6w, dr 3550 ft.

LIVINGSTON COUNTY—J. E. Flannigan's Curdy 1, sec 18-3n-5e, dr 900 ft.

MISSAUKEE COUNTY—M. J. Ingold's Donley 1, sec 31-22n-8w, sd 3100 ft.

MONTCALM COUNTY—R. E. Gallagher's Hayden 1, sec 25-11n-7w, loc. L. T. Barber's Rice 1, sec 20-12n-7w, sd 3037 ft. Daily Crude Oil Co.'s Weatherby 1, sec 20-12n-9w, dr 3400 ft.

ROSCOMMON COUNTY—Fletcher & Leyman's Childers 1, sec 15-24n-1w, dr 2970 ft. Northern Michigan Land Co.'s Hartwig 2, sec 31-24n-4w, dr 350 ft.

OSCEOLA COUNTY—M. B. Keeler's Beal 1, sec 24-18n-9w, sd 1007 ft. Dibble Brother's Townsend 1, sec 4-20n-17w, sd 1190 ft.

MISSISSIPPI

BOLIVAR COUNTY—White & Jones' Ballou 1, ne ne 18-24n-7w, arr core 1680 ft.

CLAIBORNE COUNTY—Claiborne O&G Drlg. Co.'s Crawford 1, 6-13n-4e, elev 115 ft, dr 1982 ft (Claiborne). Claiborne County Dev. Co.'s Ruth Hayden 1, 56-11n-2e, lcn.

GRENADA COUNTY—H. T. Salter's Carpenter 1, nw se 5-21n-7e, elev 344 ft, repr dk.

HINDS COUNTY—Chichester et al's Gerwin 1, sw nw 12-5n-4w, sd 525 ft.

KEMPER COUNTY—R. A. Keaton et al's Buckwalter Lbr. Co. 1, nec 6-10n-14e, dk.

LAMAR COUNTY—Sun's Scanland & Semmes 1, c sw ne 28-4n-13w, elev 317 ft, 9⅝-in. csg 1623 ft, curing titles, td 1636 ft. Snow-Black Pet. Co.'s Miller et al 1, ne ne sw 3-4n-15w, ran electrical tester, temp abn td 4005 ft.

PERRY COUNTY—Fred E. Courson's Newman Lbr. Co.'s 2, se sw sw 2-2n-10w, dk & rog.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, 33-2n-4e, dk & rog.

WILKINSON COUNTY—T. S. Stoneman et al's L. T. Ventress 1, ne sw 38-2n-3w, 10¾-in csg 799 ft, dr 4152 ft.

YALABOUSHA COUNTY—G. M. Langston et al's W. C. Bryant 1, ne sw 21-24n-6e, elev 276 ft, dk & mir.

MONTANA

CARBON COUNTY—East Bridger Oil & Gas Co.'s 1, csl se se 23-6s-23e, dr 1521 ft.

CASCADE COUNTY—Cl. Smith's Hines 1, se se sw 14-22n-2e, dr 1756 ft.

FERGUS COUNTY—Emmons et al's Government 3, se ne ne 6-21n-18e, dr 1069 ft after setting 15½ in csg at 410 ft. Judith Operating Co.'s Government 2, cwl nw ne 35-22n-17e, ur to lower 8⅝ in csg to 3260 ft. Operators are dr ahead at 3315 ft.

PARK COUNTY—Ben Ryan's Burgess 1, se sw nw 28-2Sn-11e, dr 428 ft.

PHILLIPS COUNTY — R. G. Parrent's Hartman 1, cnw se 12-24n-25e, dr 630 ft.

PONDERA COUNTY—Gordon Campbell's Hughes 1, nw ne nw 12-30n-4w, set 5 in csg at 2360 ft and is dr ahead to the Ellis-Madison contact formation.

YELLOWSTONE COUNTY—R. C. Tarrant's Mosser 1, cwl sw ne 26-3s-24e, dr 2460 ft.

NEBRASKA

FRANKLIN COUNTY—William Stienle's 1, se ne se 25-1n-15w, dr 381 ft.

SIOUX COUNTY—J. M. Huber Corporation's Morgan 1, cnw¼ sw 32-35n-56w, dr 2396 ft.

NEW MEXICO

LEA COUNTY—Argo Royalty Co.'s B. T. Lanehart 1, sw se ne 21-25s-37e, elev 3071 ft. Anderson-Prichard Prod. Corp.'s C. M. Carlson 2, c sw nw 21-25s-37e, Baldridge et al's Blakey 1, c nw ne 5-20s-38e, elev 3586 ft, base salt 2660 ft. Brown & Reynolds' Parcell 1, c nw se 8-21s-38e, elev. 3573 ft. Carlock et al (was Talbott & Mullineaux's) Quincy-Ricker 1, c se

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se 7-16s-36e, elev 3945 ft, top anhydrite 1975 ft. Amon G. Carter et al's E. M. Elliott 1, c nw nw 22-22s-37e, elev 3374 ft; Elliott 2, c ne nw 22-22s-37e, elev 3375 ft. C. & G. Oil Co.-The Texas Co.'s Ellen Weir 1, c ne ne 14-20s-37e, elev 3564 ft, td 4074 ft. J. C. Clower et al's W. H. Turner 1, c se se se 29-21s-37e, elev 3469 ft. Barney Cockburn & Rowan-Nichols Oil Co.'s H. G. Mattern 1, c sw se 7-22s-37e, elev 3426 ft, td 3789 ft. Conoco & The California Co.'s E. M. Elliott 1-A-15, se se se 15-22s-37e, elev 3354 ft; Ira C. Forney 1-A-5, c sw se 5-23s-36e, elev 3457 ft; Rex Williams 1-A-27, c sw sw 27-23s-35e, elev 3428 ft. Culbertson, Erwin & Stovall's J. R. Stuart-Repollo 2, nw se se 10-25s-37e, elev 3108 ft. Devonian Oil Co.'s A. L. Christmas 1, ne ne se 28-22s-37e, elev 3339 ft. Empire O&R Co.'s Sim Dabbs 1, c nw nw 23-25s-37e, elev 3086 ft; R. L. Brunson 1, nw nw se 4-22s-37e; Anna Walden 1, c se nw 21-22s-37e, elev 3352 ft. A. R. Eppenauer et al's F. B. Stuart-Amerada 1, ne nw ne 22-25s-37e, elev 3082 ft. J. E. Farrell & Co.'s E. W. Walden-Amerada 1-A, c sw nw 15-22s-37e; Walden-Amerada 1-C, c sw sw 15-22s-37e, elev 3385 ft. Geo. F. Getty Oil Co.'s D. C. Hardy 1, c se se 20-21s-37e, elev 3494 ft. Harry W. Leonard et al's B. T. Lanehart 3, c ne nw 21-25s-37e, elev 3081 ft. Magnolia's E. O. Carson 3, c sw sw 28-21s-37e, elev 3467 ft; State 1-G, nw nw ne 24-17s-34e, elev 4019 ft. Maljamar O&G Corp.'s Baish 7, c se nw 21-17s-32e, elev 4046 ft. Joe C. Maxwell, R. Crandall & C. H. Osmond's State-Lane 1, c sw nw 32-10s-34e, elev 4205 ft, top anhydrite 2060 ft. Plains Prod. Co. et al's J. A. E. Knight-Humble 2, c nw sw 22-24s-37e, elev 3234 ft; Knight-Humble 3, c se se 21-24s-37e, elev 3218 ft; Knight-Humble 4, c sw sw 22-24s-37e; Repollo Oil Co.'s O. J. Boyd 2, nw nw nw 23-22s-37e, elev 3338 ft; Robt. Jamison 1, sw se ne 21-24s-37e, elev 3227 ft; A. M. York 1, se se ne 20-21s-37e, elev 3495 ft; Rushwold Oil Co.-Conoco & California Co.'s E. E. Carter 1, c nw ne 30-20s-39e, elev 3559 ft; Samedan Oil Corp.'s S. B. Hughes 2, c nw se 4-23s-37e, elev 3318 ft; Shell Pet. Corp.'s Black 1, c nw ne 21-24s-37e, elev 3227 ft; State 1-T, c se ne 34-20s-35e; Skelly Oil Co.'s Hugh C. Sims 1-D, c se nw 3-23s-37e, elev 3300 ft; R. R. Sims 2, c ne sw 3-23s-37e, elevation 3298 ft; R. R. Sims 1-C, c se sw 3-23s-37e, elev 3297 ft; W. P. Sims 1, c ne ne 10-23s-37e, elev 3298 ft; W. P. Sims 1-B, c nw ne 10-23s-37e, elev 3296 ft; F. S. Stuart 1-A, near c ne nw 15-25s-37e, elev 3105 ft; Stanolind O&G Co.'s P. J. Langley 1, c se nw 15-25s-37e, elev 3109 ft, ph fr 3418 ft to 3381 ft; W. H. Street et al's Wood-Humble 1, near c se ne 22-22s-37e, elev 3355 ft; Sun Oil Co.'s I. R. Stuart 2, c sw ne 15-25s-37e; The Texas Co.'s Jas F. Black 1, c sw ne 21-24s-37e, elev 3225 ft; J. D. Young 1, se se se 5-24s-37e, elev 3277 ft; V. M. Henderson 1, se se ne 30-21s-37e; Tide Water Oil Co.'s Coates 1-B, c nw nw 21-25s-37e, elev 3073 ft.

ROOSEVELT COUNTY—Clovis Dev. Co.'s S. Smith 1, c se ne 17-2s-30e, Franklin Oil Corp. et al's Rual Giphant 1, nw nw nw 28-3n-30e, elev 4458 ft. Joe C. Maxwell, Inc., R. Crandall & C. H. Osmond's A. B. Williamson 1, c nw nw 7-8s-36e.

OKLAHOMA

ATOKA COUNTY—A. J. Sanders' Redden 3, se sw sw 19-1n-15e, reaming 874 ft. Prairie Investment Co.'s Cobb 1, sw ne nw 19-3s-11e, td 720 ft, D & A.

BECKHAM COUNTY — Mid-American Oil Co.'s Briscoe 1, sw se ne 28-8n-22w, dr 1050 ft.

CADDO COUNTY—Wasteka Oil Co.'s Griffin 1, sw se ne 27-6n-10w, td 6597 ft, D & A.

CARTER COUNTY—Head & Straus' Simpson-Fell 1, nw nw se 8-5s-1e, dr 800 ft.

CLEVELAND COUNTY — Helmerich & Payne's Glenn 1, cnw ne 6-8s-1w, dr 2464 ft.

COAL COUNTY—Sinclair Prairie Oil Co.'s Gentry 1, ne ne sw 16-1n-8e, td 5764 ft, D & A. Continental's Kirby 1, sw se sw 23-1n-8e, wo rot. Continental's Breedlove 1, nw sw sw 24-1n-8e, dr 4250 ft. Continental's King 1, ne sw ne 26-1n-8e, dr 5180 ft. Continental's Daniels 1, sw ne sw 27-1n-9e, dr 4389 ft. Carter's Warne 1, ne ne nw 31-2n-9e, cor 4914 ft.

COMANCHE COUNTY—L. D. Wise et al's Cones 1, se se sw 11-1n-10w, td 2156 ft, sd. Frank Scott's Kuntz 1-A, cse ne se 21-4n-11w, dr 1016 ft.

COTTON COUNTY—Phillips Pet. Co.'s Warren 1, ne ne se 1-5s-13w, dr 2695 ft. Grace-Wood Drlg. Co.'s Wilson 1, csw nw 17-4s-11w, dr 2583 ft.

GARFIELD COUNTY—Ohio's McFarland 1, se se se 25-24n-3w, dr 3380 ft.

GARVIN COUNTY — Ellison & Hammond's Selby 1, cnw nw 24-2n-3w, td 3857 ft. Pure Oil Co.'s Baker 1, se se ne 7-2n-1e, dr 4762 ft. Luttrell et al's Howell 1, nw se nw 34-1n-1e, Hayes Drlg. Co. new operator.

GREER COUNTY—Nelf et al's Melton 1, cse nw se 16-3n-22w, to test. Bud Lewis et al's Webster 1, sw ne ne ne 7-7n-24w, dr 245 ft.

HUGHES COUNTY — T. P. McAdams & Barnes' Koch 1, sw ne ne 1-9n-10e, pb 3763 ft, woc. R. K. Ellison's Peters 1, se nw se 8-6n-10e, td 2781 ft, to core. Mid West Oil Co.'s Turner-Lucas 1, cse nw 13-9n-9e, td 880 ft, run 12-in csg. Sivils et al's Montgomery 1, nw sw nw 7-9n-9e, td 3540 ft, D & A.

JEFFERSON COUNTY—Pearson's Douthitt 1, ne ne ne 24-6s-9w, td 4322 ft, D & A. Mid-Continent Pet. Corp.'s Reid 1, csw nw 32-6s-4w, dr 1786 ft. Massas & Swansberger's Barrett 1, ne se se 14-6s-6w, td 21 ft, sd.

JOHNSTON COUNTY—Patten et al's McCrummens 1, sw sw ne 16-1s-6e, td 503 ft, sd.

KAY COUNTY—Max Kelley's Johns 1, nw nw nw 35-27n-4e, td 2444 ft, hfw 2390 ft. G. A. Brown et al's Harris 1-A, sw sw ne 14-25n-1e, cel.

KIOWA COUNTY — Argus Pet. Co.'s Osbourne 1, nw nw ne 9-7n-16w, fsg 1225 ft. Lykins et al's Aetna Life Ins. Co. 1-A, se se se 9-5n-16w, dr 851 ft.

LE FLORE COUNTY—McGraw et al's Tidwell 1, cnw se 17-3n-22e, td 2340 ft, ur 10-in csg.

LOGAN COUNTY—Anthony & Marshall's Fruin-Eckman 1, se se sw 4-16n-1e, dr 4970 ft. Helmerich & Payne's Hasler 1, nw nw se 14-16n-4w, dr 5200 ft.

LOVE COUNTY—Sinclair Prairie's Stockton 1, se se sw 26-6s-2w, td 6927 ft, prep to swab.

MARSHALL COUNTY—Magnolia Pet. Co.'s Gardner 1, cne ne nw 34-6s-6e, dr 1320 ft.

McINTOSH COUNTY—Stanolind & Ramsey's Tiger 1, nw nw sw 13-9n-15e, td 4949 ft, to core.

MURRAY COUNTY—Hernsby & Jones' Sadler 1, ne ne nw 20-1n-2e, td 2674 ft. Power Oil Co.'s Lancaster Trust Co. 1, csw ne 10-1s-2e, bailed dry, to dd. Russell's Fee 1, se nw se 9-2s-3e, rig mach.

NOBLE COUNTY—Shell et al's Moelling 1, csw nw 31-21n-2w, dr 4648 ft. Darby et al's Aetna Life Ins. Co. 1, se se nw 1-23n-2w, rig.

OKFUSKEE COUNTY — Harvey Oil Co.'s Stewart 1, ne ne ne 28-10n-9e, sd.

OSAGE COUNTY—Chavalier & Simon's No. 1, se se se 24-23n-9e, sd 2290 ft.

PAWNEE COUNTY—Forest Dev. Co.'s Otter 1, cne nw 15-21n-5e, dr 1874 ft.

PITTSBURG COUNTY—Oklahoma Dist. Co.'s Beeler 1, ne ne se 7-7n-14e, dr 3922 ft.

PONTOTOC COUNTY—H. H. Diamond et al's Fee 1, se se se 30-5n-8e, td 1070 ft, D & A. Caloma Oil Corp.'s Brentz 1, se ne sw 4-1n-6e, sd 503 ft.

SEMINOLE COUNTY—A. I. Spears' Keaton 1, nw nw nw 6-5n-8e, rig. Riverland O&G Co.'s Goebelt 1-A, nw se se 12-6n-6e, dr 2030 ft. Amerada et al's Yahola 1, ne nw nw 36-10n-7e, flow 235 bbls oil 24 hrs, comp.

STEPHENS COUNTY—Ed Parson's Olson 1, csw sw 21-2n-8w, dr 5392 ft. T. M. McCasland's Hildebrand 1, sw sw ne 1-3s-1w, sd 4601 ft. Coline Oil Co.'s Johnson 1, csw se nw 1-2n-8w, dr 4720 ft. Edward's Frederick 1, ne se nw 31-2n-8w, dr 1810 ft. Jack Cohen's Pierce 1, cne nw 24-2s-6w, rur.

TEXAS COUNTY—Allison & Barnhill's Bingley 1, sw sw ne 30-2n-18ecm, sd.

TILLMAN COUNTY—Beal & Toler's Magell 1, se se se 18-1n-16w, mom. Eugene Skinner's Oliver 1, se se nw 22-1s-15w, fsg 1314 ft. I.T.I.O. Co.'s Drumm 1, csw nw 32-3s-17w, dr 3590 ft.

WASHITA COUNTY—McWhirter et al's Fee 1, sw sw sw 34-8n-19w, td 1562 ft, sd.

EAST TEXAS BORDER COUNTIES

HARRISON COUNTY—H. H. Roberts et al's Zion Douglas 1, L. S. Field sur, dr 800 ft. Weiss et al's W. L. Rudd 1, Wm. Steele sur, lcn.

MARION COUNTY—Tom Bell's Carrie Moseley 1, David Lane sur, 12½-in csg 72 ft, sd 500 ft. Holcomb, Thomasson et al's (formerly M. H. Overlees et al) Lizzie Henderson 1, R. Bennington sur, dr 2910 ft.

PANOLA COUNTY—Glassell & Glassell's Frost Lbr. Co. 1, Mary S. Potts sur, elev 216 ft, using gas to drill nearby wells, td 6002 ft. Williamson 1, H. Coleman sur, dr 3930 ft. Lawler Pet. Co.'s C. T. Becknell 1, Bailey Anderson sur, dr 4331 ft. White Goodwin Synd's Hill 1, Winny Mann sur, rur. Logansport P. L. Co.'s Rushing 1, Mannan Smith sur, 7-in csg 2477 ft, acidized, td 2734 ft. Magnolia Pet. Co.'s E. A. Hull 1, Thos. Applewhite sur, elev 232 ft, top Georgetown 2395 ft, top massive anhydrite 4659 ft, dr 5358 ft, sandy shale & lime. Motex Oil Co.'s J. M. Furrh 1, Thos. M. Alstone sur, top chalk 1575 ft, 9⅝-in csg 2460 ft, dr 4140 ft. Yandell Rogers' Cameron Lbr. Co. 1, Wm. A. Lagrone sur, lcn.

SHELBY COUNTY—Rubeling & Potter's O. H. Polley 1, Wm. Whisner sur, arr deepen td 4200 ft. Red Wing Oil Co.'s C. H. Herton 1, J. Dowlin sur, fsg 1888 ft. Mulroy & Curtin's C. Hayden 1, D. F. T. Yordt sur, co to deepen td 2907 ft. H. A. Stebbinger's Pickering Lbr. Co. 1, C. E. Henry sur, si, td 5029 ft. Pure Oil Co.'s J. L. Smitherman 1, S. O. Pennington sur, mim. Wm. Redditt's Pickering Lbr. Co. 1, Stephen English sur, rur.

EAST TEXAS

BOWIE COUNTY—Woodley & Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ mi sw Dalby Springs, elev 290 ft, Annona chalk 1665-2090 ft, dr 4215 ft. Ferguson & Hill's A. Y. Breckenridge 1 (412-ac), Nancy Dycas sur, 4 mi w Texarkana, sp and sd.

CHEROKEE COUNTY—A. F. Richardson et al's F. P. O'Brien 1 (167-ac), G. S. Clapp sur, 3 mi n by w of Rusk, lcn. General Crude Oil Co.'s Mrs. S. L. Stockton 1 (103-ac), S. Jarboe sur, 3 mi ne Mount Selman, top Pecan chalk 3330 ft, dr 3450 ft. Dr. H. Hancock et al's Mrs. Pryor-Shell 1 (53-ac), J. T. Jones sur, Rusk area, mim.

COLLIN COUNTY—California Consolidated Oil Corp.'s Mrs. W. L. Fagg 1 (38-ac), Jas. Rutherford sur No. 4, elev 626 ft, top Georgetown lime 1980-2651 ft, top Paluxy series 2706 ft, tested fresh w at 2771 ft and at 2784 ft, sd but to fulfill contract depth. Port Bolivar Co.'s O. C. Durning-Clarkston 1-A (140-ac), Wm. Creager sur Pat. 1193, elev 722 ft, dry on dst at 4050-4098 ft, cem 7-in cas 3899 ft, bailed to 4085 ft, showed trace oil with salt water; A. Shirley 1 (50-ac), Gwynn Morrison sur, 1 mi e Anna, dk.

DELTA COUNTY—W. S. McGee et al's Mrs. P. W. Miller 1 (52-ac), E. Spencer sur, 1 mi sw Cooper, elev 465 ft, top Woodbine Red Beds 2650 ft, top Georgetown lime 3040 ft, sd 4220 ft.

FALLS COUNTY—J. Edward Mills et al's Sam Grucholski 1 (40-ac), Dennis Herold League, 5 mi sw Kosse, elev 521 ft, Austin chalk 2765-2946 ft, Georgetown lime 3544-3825 ft, top Edwards lime 3867 ft, top upper Glen Rose 4074 ft, sd 4114 ft, may dd to basal Trinity.

FREESTONE COUNTY—Fred R. Lovering et al's E. Bonner-Scott 1 (23-ac), H. Awalt sur, 7 mi n Fairfield, Pecan chalk 2175-2286 ft, top Austin chalk 3117 ft, dr shale 3870 ft. R. L. Wheelock, J. L. Collins et al's W. R. (Bill) Boyd Jr. 1 (410½-ac), F. P. Cabler sur, 3½ mi sw Fairfield, lcn. Roger Stewart and Velvet Oil Co.'s E. H. Beauchamp 1 (100-ac), E. Greens sur, 4 mi nw Fairfield, elev 374 ft, Pecan chalk 2430-2586 ft, top Austin chalk 3362 ft, tested salt water in Woodbine 4134-4138 ft, dr 4140 ft.

GRAYSON COUNTY—Olson Drl. Co.-Jas H. Gardner & Broswood Oil Co.'s D. R. Utiger 1 (160-ac), P. P. Cady sur, 5 mi nw Denison, elev 722 ft, show o&g in Trinity 860-890 ft, base Trinity series 930 ft, top chert 950 ft, dr hard chert 1580 ft.

HENDERSON COUNTY—Cosden Oil Corp.'s Mrs. E. P. Miller 1 (1550-ac), Thomas Chaffin sur, elev 451½ ft, Pecan chalk 3232-3474 ft, top Austin chalk 4440 ft, coring Woodbine series 4910 ft. Wm. McDougal, Tr. et al's Elvira Price 1 (216-ac), M. Matthews sur, 3½ mi s Trinidad, elev 294 ft, Pecan chalk 2100-2390 ft, Austin chalk 3050-3484 ft, top Woodbine 3832 ft, sdo 3912 ft. S. Sparks, Keeley et al's Theo. H. Berry 1, Asron York sur, No. 847, 5 mi s Brownsboro, sp and sd.

HOPKINS COUNTY—Empire O&R Co.'s J. E. Worsham 1 (149.36-ac), Alex O. Wetmore sur, rur. D. S. Hager and W. P. Luse's J. G. Reynolds 1 (200-ac), A. O. Wetmore sur, cem surface pipe. Hager-Luse & Russ Pet. Co.'s J. E. Worsham 5 (192.26-ac), A. O. Wetmore sur, top Paluxy pay 4432 ft, dr 4439 ft; J. E. Worsham 6, lcn; J. E. Worsham 7, dr 4210 ft. F. D. Jones Drilling Co. et al's Mrs. J. K. Pierce-Gulf 1 (225-ac), Jas. A. Craft sur, lcn.

HUNT COUNTY—Penn Oil Corp.-Elmer S. and Fox Wood's A. B. Manning 1 (57½-ac), Sally Owens sur, 5 mi ne Lone Oak sur, elev 599 ft, dk.

LAMAR COUNTY—J. A. Forester et al's J. S. Woodward 1 (183¾-ac), J. W. Woodward sur, 1½ mi e by s of Minter, elev 402 ft, top Georgetown 2256 ft, Paluxy sand 3060-3144 ft, top anhydrite 3735 ft, base hard anhydrite 4075 ft, broken to 4105 ft, dry and abd in basal Trinity series 5203 ft. H. Salmon, Lowery & Cutler's E. C. Porter 1 (30-ac), Thos. King sur, 3 mi ne Chicota, dk.

LEON COUNTY—Roth & Faurot O&G Co.'s J. L. Shaw 1 (254-ac), O. R. Reams sur, 5 mi n Centerville, top broken Pecan chalk 4065 ft, base chalk 4290 ft, dr 4300 ft. H. M. Ogg et al's O. Wiley 1, E. Devinney sur, 1 mi w Buffalo, dk.

LIMESTONE COUNTY—A. H. Grider et al's W. B. Kendrick-Pure 1 (10-ac), Pedro Varella sur, Mexia field, lcn for 6100-ft Trinity test. A. W. Phillips et al's E. M. Speight 1 (136½-ac), M. Herrin and Pedro Varella sur, 4 mi ne Groesbeck, mim.

NAVARRO COUNTY—Calto Oil Co.'s Etta Black 1 (160-ac), B. G. Balthrope sur, 1 mi sw Bazette, lcn abd.

RAINS COUNTY—Humble O&R Co.'s O. L. J. Easter 1 (393¾-ac), R. Hotchkiss sur, 4½ mi e Emory, 7600-ft Trinity test, elev 438 ft, Pecan chalk 2177-2862 ft, Austin chalk 3260-3570 ft, cem 9⅝-in cas on top Georgetown lime about 5059 ft.

RED RIVER COUNTY—J. S. Abercrombie Co.-Harrison Oil Co.'s Southern Pine Lumber

Co. 3 (392.37-ac), D. D. Bruton sur, 10 mi ne Clarksville, elev 403 ft, dr 1920 ft. Roy I Carter Drl. Co. et al's J. A. Tutt 1 (40-ac), Dennis Harty sur, 2 mi s Avery, sp and sd. Carpenter Oil Corp.'s R. E. Anderson 1 (100-ac), S. W. Sims sur, 3 mi n Clarksville, elev 459 ft, top Red Beds 1250 ft, dr 1560 ft. T. J. Farrington et al's W. T. Morris 1 (351-ac), Joseph Guest sur, 1 mi s Detroit, elev 478 ft, dry and abd 1227 ft. M. Petroff et al's R. C. Morris 1 (176-ac), Joseph Guest sur, 2 mi w Detroit, sp and sd. Dale Sneed, R. H. Manning and Texfornia Co.'s Hooker-Hughes 1 (80-ac), MEP&P Ry sur No. 642, 6 mi sw Lydia, elev 307 ft, Pecan chalk 995-1302 ft, top Austin chalk 2018 ft, sd 2720 ft.

ROBERTSON COUNTY—J. Edward Mills et al's Tony Congelosi 1 (75-ac), Geo. A. Nixon sur, 3½ mi sw Hearne, dr by junk, td 2250 ft.

RUSK COUNTY—John W. Merritt et al's J. A. Stallings 1 (47-ac), Thos. Uzzell sur 2½ mi s Eastex field, ¼ mi sw Pleasant Grove, Pecan chalk 2680-3125 ft, Austin chalk 3700-3868 ft, top Woodbine 3881 ft, dry and abd 3926 ft. Ben E. Lamb et al's H. Leath 1 (185-ac), L. J. Dooley sur, 2½ mi e of Pirtle, elev 370 ft, Austin chalk 3352-3512 ft, rust, td 4710 ft, to pb and perf cas.

SMITH COUNTY—W. L. Cloud et al's Dora Kendall 1-A, John Williams sur, 1¼ mi se Jamestown, dr 2710 ft.

TITUS COUNTY—McIntyre et al's John B. Stevens 1, J. Meechen sur, 8 mi sw Mount Pleasant, rig.

UPSHUR COUNTY—Bell Oils, Inc.-Bennett Pet. Corp. & B. L. Watson's W. O. Irvin 1 (249-ac), D. R. Cannon sur, 4 mi ne Coffeeville, elev 241 ft, top Pecan chalk 2345 ft, dr 2500 ft.

WOOD COUNTY—G. W. Nix et al's Mrs. E. A. Russell 1, John Delap sur, 4 mi w Golden, sd 600 ft.

SOUTH TEXAS

ATASCOSA COUNTY—Frontier Oil Co.'s Oppenheimer 1, 193.4-ac tr, J. Sharp sur No. 518, 6 mi s Lytle, rig. Helvetia Oil Co.'s Susie Pratt 2, 176-ac tr, F. De la Garza sur, Anchorage prospect, ½ mi se Pratt 1, dr 3400 ft, soft broken serp 3224-66 ft, show oil, still in serp at 3400 ft. Rogers & Rogers' B. McLain 1, 84.8-ac tr, V. Trevino sur 79, 4½ mi s Somerset, one mile s Somerset field, td 2013 ft, pb td 1714 ft, sdy sh and sd 1620-92 ft, 7 in cas 1620 ft, pumped 15 bbls in 4½ hrs, 30 grav oil.

BASTROP COUNTY—Joe E. Mills' Chas. W. Eskew 1, Samuel Wolfenberger sur 18, Hilbig area, top Austin chalk 2865 ft, sd 2904 ft. Lee F. Ross et al's J. O. Caldwell 1, 1500-ac tr, J. A. Navarro sur, 10 mi w Bastrop, recemented 7 in cas 2424 ft, top **Austin chalk** 1890 ft. Paul C. Teas' Clement Vinklarek 1, 100-ac tr, A. Millet league, 10 mi s Smith Villa, td 7142 ft, top Edwards 7122 ft, slight oil show, running 5½ in csg to bottom.

BEE COUNTY—Home Oil Co.'s B. Massey 1, 330 ft sel, 1650 ft swl of 127.1-ac tr in Thos. K. Pilkington sur, ab 250, 1 mi n Voss field, dr 250 ft. W. C. McBride, Inc.'s Plummer 1, F. J. Chessman sur, sec 33, Plummer sub, dst 3034-40 ft, 450 lbs pressure, 60 ft oil and mud. 5 min ¾ in top and bottom choke, 51 ft brackish water in btm of hole. Miller-Donzis Oil Corp.'s A. M. Holzmark 1-B, Foley, 135-ac tr S. May sur, 1200 ft nw Holzmark 1, Foley area, dr 2475 ft.

BEXAR COUNTY—Algra Oil Co.'s Edward C. Peters 1, Miguel Gotari sur 5, sec 4, 13 mi se San Antonio, sd 670 ft. American Gas Co.'s Oliver 5, 400-ac tr, M. F. Rodriguez sur, Gas Ridge, dr 3304 ft, lime. Albert Chmel's McIntosh 1, 274-ac tr, J. W. Garrity sur, No. 19, ¾ mi sw Kirby, dr 40 ft. R. O. Clark's C. F. Krause 1, 150 ft fr se and sw lines 30-ac tr. S. McCullough No. 10, ½ mi w Von Ormy field, set 6⅝ in cas 640 ft comp ½ mcf gas, 710 ft H. V. Hange and G. E. Donnell Mahula 1, 260 ft e Abbott rd, 2000 ft n Greyton rd, 504 ac tr Jose Maria Bustillo sur No. 29, 5 mi nw Adkins, mim. Mayers & Smith's Bass et al 1-A, 73.5-ac tr, F. A. Ruiz sur 47, 40 ft n No. 1, 2 mi se Von Ormy, dr 1235 ft. Raymond Pulliam's E. J. Lamm 2, 9140-ac tr, E. Frobese sur, near Elmendorf, abnd 2957 ft, top Edwards lime 2872 ft. J. O. Williams' C. Hoch Est 1, 300 ft n Nelson rd, 600 ft wl 157-ac tr, J. M. Baerrera sur No. 58, 1¼ mi n Von Ormy Pool, ru. Woodward & Hardie's R. W. Devilbiss 1, John Devilbiss sur, 1 mi s Thelma, abnd 2284 ft. Woodward, Hardie & Herrold's Herman Sons 1, 2019-ac tr, Henry Pace League sur 37, tr 9, Swearingen, Cassin & Tayloe subd, 28 mi s San Antonio, dr 180 ft.

BROOKS COUNTY—California Co's Mestena 1, Alta Mesa area, B. Garcia tr 5, La Mestena de Gonzalina gr, snd 2485-2505 ft, dr 2530 ft; B. Garcia 3-2, Tr No. 3, La Mestena de Gonzalina gr, Alta Mesa area, set sur cas at 519 ft; Wocs Douglas & Burden Inc's H. A. Faller 1, C. M. Laughlin sur No. 434 Alta Verde, 1½ mi se prod, sd 605 ft. Magnolia's Lasater 1, S. Korkill sur No. 440, 9 mi w Falfurrias, abnd 5486 ft.

BURLESON COUNTY—M. R. Exploration Co. Inc.'s Fountain 2, 936-ac tr, W. Raleigh sur, blk A-47, 12 mi ne Caldwell, abnd 6504 ft; Fountain 3, 1100 fr sel 1950 ft fr nel of 936-ac tr, blk A-47 of W. Raleigh sur, 700 ft e No. 2, 12 mi ne Caldwell, skidding on. Red Bank Oil Co's Nellie Gramm 1, Elisa Santef sur, 2500 ft nw of Co's Gramm 1, 7 mi w Creisman, set 7 in cas 3900 ft, dr lime 6022 ft, top Georgetown 5953 ft.

CALDWELL COUNTY — Brown Drilling Co's W. J. Pope 2, Salt Flats area, 134-ac tr, John D. Rains sur, 8 mi se Lockhart, 500 ft e Pope 1, lcn; G. M. Blackwell 1, 409-ac tr, John Roe sur, 1500 ft w Grayburg's Blackwell 1, 7 mi sw Lockhart, dr 50 ft. J. G. McKenzie's J. M. Pierce 1, S. Seal league, s of Luling, Dunlap area, sd 160 ft. R. George Young, Trustee's Schmidt 1, 150 ft sl, 1265 ft el of W. C. Williams 1/3 league, 3 mi w Lockhart, lcn.

DUVAL COUNTY—Benedum & Trees' Sevier 1, 6039-ac tr, Palo Blanquita gr, 2 mi ne Realitos, abnd 7015 ft. Mills Bennett's Yates 3, sec 317, 4 mi se Labbe field, abnd 3712 ft; Yates 4, 330 ft nl and wl, sec 467, 3 mi e Labbe field, dr 2475 ft. N. V. Duncan's Worden & Drought 1, GC&SF sur No. 151, just nw discovery Charamousca field, ru. Gilcrease Oil Co. and Tom Graham's M. S. Escobar 1, blk 4, sec 2, 829.5-ac tr, Juan Jose Manuel de la Garza Falcon gr, Buffalo Tex. subd, 2 mi sw Premont area, coring 3200 ft. F. A. Gillespie & Sons' Perez et al 1, 160-ac tr, San Diego de Ariba Gr, 3 mi w of San Diego, sd 5605 ft, contract depth, will drill deeper. W. L. Goldstone et al's J. F. Welder heirs 1, s¼ sur 217, 2 mi e of n end of Loma Novia field, abnd 3018 ft. Humble's V. Kohler 52-A, 990 ft nl and el M. Gussett sur No. 164, n portion Kohler field, Mirando sand 2613-42, set 5 in cas on bottom, comp 16 bph, ½ in choke. McCandless & Cloyes' Sutherland 1, sec 126, 8000 ft e Sarnosa field, abnd 3941 ft. Magnolia's Labbe 1, 2330 ft wl, 2586 ft sl, sec 221, 2/3 mi nw Labbe field, lcn. Oliver Oil Co's Luby 1, 330 ft nel, 330 nwl s¼ sur 146, lcn. Albert Plummer et al's Danmier 1, ne¼ sec 58, in Copeta Garden Tracts, addn No. 4, 9 mi s Realitos, dr 2355 ft. Texas Co's Duval County Ranch Company 1-C, commence w cor sur 56, 2970 ft se along sw line, thence 330 ft sw at rt/a in sur 194, 3½ mi sw field, lcn. E. R. Thomas' Parr 2, 330 ft sl, 330 ft wl of the ne¼ sur 2, set sur cas, wocs. W. L. Wollett and M. D. Masten's Bishop Duval Land Co 1, se ¼ sec 74, 1¾ mi w Hoffman field, lcn.

EDWARDS COUNTY—Plateau O & G Co's Hatch 1, J. W. May sur, sec 66, HE & WT RR sur, dr 2780 ft, lime.

FRIO COUNTY—Amerada Halff & Oppenheimer 7, B. J. Gilman sur, Pearsall, dr 5290 ft; Halff & Oppenheimer 8, San Antonio Ditch Company sur No. 1104, Pearsall, dr 1304 ft. Thornton Davis et al's Halff & Oppenheimer 1, John C. Clare sur 336, 1 mi e Pearsall chalk production. td 6518 ft, acidized with 4000 gallons, swabbed 63 bbls oil 15% water, in 20 hours, hole swabbed dry, swabbed 10 hours no show.

GOLIAD COUNTY—Felmont Corp's W. Hoff 1, 75-ac lease, BS&F sur No. 7, 3000 ft se Maetze field disc well, dr 2075 ft. Sun's Fromme 1, L. A. Maetze sur. 10 mi n Goliad, sd 4965 ft, pump repairs. R. B. Swiger's Wood 1, 460 ft nwl, 890 ft swl blk 23, Swiger sub, Wood Ranch, George Villa sur, 15 mi s Goliad, 2 mi e Keystone's Woods' 1, lcn.

GONZALES COUNTY—M. S. Holliday et al's T. G. Edwards 1, W. W. Pace 1/3 rd league, blk "A," Holliday subd, 3 mi sw of Cheapsides, sd 933 ft. Reedy & Tull's J. F. Bozka 1, B. McClure sur, s of Dilworth, sd 2200 ft. H. H. Weinert (Marts & Beavans') Martindale 1, J. Robinson sur, near Ottine, dr 3040 ft.

GUADALUPE COUNTY—R. B. Byrd et al's Jahns 1, 100-ac tr, Green DeWitt sur, s Darst Creek, dr 2140 ft. Chas. Gulver et al's Wm. Vorphal 1, Geo. W. Edwards sur 56, 4 mi sw New Berlin, td 2525 ft, top Edwards 2516 ft, pb 1934 ft, set 7 in cas 1910 ft, oil show 1910-34 ft, tested sw, abnd. Detroit Texas Dev Co's W. T. Carter 1, 300-ac tr, 1 mi sw San Marcos river, 2 mi ne Sullivan, td 2356 ft, set 7 in cas 2065 ft, swabbed through tubing, had good oil show. W. J. Dobbs et al's Jahns 1, 100-ac lse, J. K. Davis sur, ½ mi ne S. Darst Creek prod, td 2387 ft, will drill deeper. Jim Harner et al's L. C. Koepp 1, New Berlin area, 95.35 ac tr, Vicente sur 7, 75 ft sw, Dixie Oil Co Abd test, abnd 20 ft. Long & Ross' Ed. Feliz 1, 1½ mi s fr New Berlin, 75-ac tr V. Duran sur, snd 625-26 ft, sndy shale 626 ft to 634 ft, oil show prep set cas. W. D. Bacon et al's Halm 1, ne 40-ac 331-ac tr, I. Kent sur, 2 mi s Kingsbury, dr 395 ft, sh. Riddle Oil Co's E. Nolte et al 1, J. Sowell sur, 6 mi e Seguin still testing 1880 ft.

HIDALGO COUNTY—Earl C. Hankamer et al's Rabb 1, 511-ac tr, Laguna Seca League, 5 mi sw Linn, 12 mi nw Edinburg, sd, McCollum Exploration Co's Engleman 1-B, lot 8, sec 259, Tex-Mex ry sur, La Mestina Gr, 1½ mi se Pantan Gasser, sp: James McDougal 1 lot 223, blk 1, La Blanca tr, 1½ mi s Pantana gasser, dr 1250 ft. H. J. Porter et al's Sweeny Est 1-A, lot 1, Wayne Wood subd No. 1, 6 mi sw Donna, dr 1490 ft. Union Sulphur Co's ARGL & L Co 10, blk 50, tr 2418, N. Capisallo dist, Mercedes area, td 8306 ft, cutting out tubing—6150 ft.

JIMM HOGG COUNTY—J. H. Meek, Jr's Martinez Est 3-A, sec 623, 1320 ft w Colorado field discovery, ru and sd. Pan-Ultimo Oil Co's (Theo Hicks et al) Kohler 1, blk 9, Noriacitas gr, 3 mi nw Hebbronville, dr 3550 ft. Locke Purnell and Gifford Oil Co's C. O. Gallagher 1-E, 40-ac tr, Randado gr, blk 190, Pippin subd, 4½ mi se Randado, abnd 3735 ft.

KARNES COUNTY—R. L. Barnett's Fee 2, Alex Hunter sur, 4¼ mi ne Karnes City, 800 ft se No. 1, coring 2908 ft. H. H. Weinert, Inc's Porter 1, Victor Blanco grant, coring 2910 ft.

KERR COUNTY—S. W. Forrester's J. W. Bailey 1, 333 ft el, 1280 ft nl of A. L. Starky sur No. 408, 3 mi n Ingram, dr 471 ft.

LAVACA COUNTY—Universal O & G Co and Glaspie's Schubel 2, 100-ac tr, C. Fitzgerald sur, 1100 ft ne No. 1, 2 mi nw Yoakum, ran electrical formation tester, sd 2581 ft. Willshire Union Oil Co's Pohl 1, 120-ac tr, M. Wooten sur, 7 mi nw of Ezzell, sd 1305 ft.

LASALLE COUNTY—Kennedy & Johnston's Gilmer & Wildenthal 1, 140-ac tr, sur No. 283, Santenis Carrasco sur 28, 8 mi se Cotulla, dk, and sd. W. H. Vernor's M. C. Jeffries 1, sec 726, HE & WT RR sur, 10 mi se Artesia, sd 850 ft.

LEE COUNTY—Eleoussa Oil Co's Sanders 1, 102-ac tr, J. Von Roeder sur, dr 1820 ft, sndy sh. James E. Pederson's C. A. Turner 1, D. Hudson sur, 1½ mi se Tangleweed, td 6560 ft, dr 4700 ft in sd/tr hole.

LIVE OAK COUNTY — J. H. Durbin's Marbach 4, 429-ac tr, Stephen Hays sur, 2½ mi sw Whitsett, td 917 ft, sd. Hagan & Stewart's S. A. Joint Stock Land Bank 1, 800 ft s of river, 2250 ft wl of J. Turner sur, 5 mi w & n of Three Rivers, dk. Loma Oil Co's Withers 1, Sparks sur, 3 mi n of Jacob field, ru. Ohio Fuel Supply Co's Rosebrock 1, Louis Romero sur, ne Oakville field, dr 1150 ft. Sun's J. G. James 1, 1258.3 acre, Patrick McGloin sur, ab 28, 1½ mi w Mikeska, dr 3765 ft, sndy sh 3147-57 ft.

McMULLEN COUNTY—Humble's Edrington 1, sec 57, AB & M sur, 6 mi ne Seven Sisters, td 2565 ft, coring for Gov's Wells, snd. L. D. Ormsby's J. W. Griffith 10, B. Sparks sur, ab 794, sd 940 ft.

MEDINA COUNTY—Joise Oil Co's Medina Irrigation Farms 1, lot 1 blk 32, sec 7, Medina Irrigated farms sub, 1½ mi e of Devine, dr rock 215 ft. R. P. Whitfield's W. B. Odem 1, Henry Castro sur No. 177, ne of Taylor field, oil snd 350-51 ft, sd. C. Whitting et al's Hondo Nat'l Farm Loan 2, sec 214, Geo Studer sur, ½ mi ne Hondo, 4 mi se Hondo, coring 472 ft. Will A. Wycoff's T. J. Bendele 1, 321.5-ac tr, James Barnhart sur 593, ab 1733, 8 mi s D'Hanis, sd.

MILAM COUNTY—J. O. Kilgore's S. W. Law et al 1, 606-ac tr, S. Wilhelm sur, 3½ mi w Minerva, lcn. W. R. Ritchey's Chas. McDermott 1, J. R. Cockrill sur, 6 mi e Cameron, sd 50 ft.

NUECES COUNTY—I. J. Allen and Seaboard Oil Corp.'s Chapman et al 1, sec 80, 17 mi sw Corpus Christi, dst 4119-39 ft, show 1300 ft sw 10 min, dst 4170-84 ft, show 660 ft sw, dr 6150 ft. Al Buchanan and Blanco Oil Co.'s Gandy 1, e½ sec 60, George H. Paul sub, e offset Hinds' Sevier, lcn. Cosner & Cosner's Stockton 1, ne¼ sec 25, Laureles Farm Tracts, Ramon de Ynogosa sur, 12 mi sw Corpus Christi, coring 4750 ft, dst 4720-26 ft, 10 min, 700 ft oil and 500 ft sw and mud, ¼ in choke, cored 3 ft and ran dst, recovered 650 ft sw with mud and oil. Hiawatha Oil Co.'s Griffith 6, Frank sur No. 416, Saxet, ds stuck 6408 ft, trying to cut out, snd 6303-18 ft, test 750 lbs 100 ft of 50 gr oil, 3½ min. W. L. Hinds' Sevier 1-A, sec 60, Paul subd, Driscoll Ranch, 65 ft se No. 1, 2 mi w Clara Driscoll field, td 6012 ft, perforated casing 5120-25 ft, lost swab fsh. H. S. Moss et al's R. H. Coleman 1, 320-ac tr, sec 206, Bishop sub, Palo Alto gr, s of Agua Dulce field, dr 4985 ft. Steve Paul et al's Smith 1, blk 27, sec 38, Flour Bluff & Encinal Gardens tr, 3½ mi s Flour Bluff field, lcn. Renwar Oil Co.'s W. F. Willoughby 1, 3500 ft se of n cor 860-ac tr, and 330 ft w of Petronilla creek, sec 4-G, Garret sub, Petronilla Singer sur, 5 mi se Driscoll, still dk and lay gas lines. Richardson Petroleum Corp.'s Harrell 2, blk 33, Sheppard Farm lots, 2 miles ne 6300 ft production in Saxet field, td 6356 ft, sand 6319-44 ft, perforate casing 6326-35 ft 12 shots, flowing 107 barrels per day, 50 gravity oil, ⅛ in choke, tubing 1800 pounds, casing 2400 pounds. G. M. Richardson et al's R. S. Carter 1, nw¼ of sec 8, Laureles Farm Tr., 8 mi s CC and 2 mi se London, dr 5350 ft. Texon Drilling Co.'s Sevier 1, 880-ac tr, W. W. Chapman lands, Palo Alta Grant, S. Agua

Dulce, n offset Texon Austin, td 6832 ft, blew out running wild, cratered, on fire, making oil and gas. Wellington Oil Co. and Pan-American Production Co.'s Sevier 1-A, Wm. Gamble sur, se of Clara Driscoll field, coring 5360 ft.

REAL COUNTY—Sun's Dietert & Oppenheimer 1, section 7, GWT&P RR survey, 20 mi nw Leaky, dr 1180 ft.

REFUGIO COUNTY—Josey & Bruton's M. F. Lambert 3, 466 ft nl, center el and wl blk 50, Swisher sur, 1 mi w Tomoconnor prod., dr 3885 ft. Tidewater's E. G. Landgrof 1, 220-ac tr, J. Collyer sur, n of Hynes Bay, dr 7015 ft. Windsor Oil Co.'s G. W. Bissett 1, John Crockett sur, 1 mi nw Tivoli field, lcn.

SAN PATRICIO COUNTY—Atlantic's McCampbell Ranch 1-C, 330 ft sel and swl of lot 9, blk 41, McCampbell sub No. 4, McCampbell area, moving in. Callaway-Crosby & Porter's White Point Dev. Co. 1, 438-ac tr Seguin sur 4 and 5, ab 247, White Point, td 6510 ft, sdtr 4914 ft, made oil and sw, abnd. Eleanor Oil Co.'s Wm. Kline 1, lot 5, blk "C" Coleman-Fulton Pasture Co. subd, 2½ mi se Gregory, sd 6800 ft; W. W. Toland 1, 8000 ft n Kline 1, lot 15, blk A, Coleman-Fulton Pasture subd, 2½ mi e Gregory, dk and sd. Hooper & Rutherford, Inc.'s J. D. Willis 1, Gregory area, T. T. Williamson sur, e offset to Eleanor's Kline 1, dr 6050 ft. Texon Royalty Co.'s J. H. Harvey 1, 330 ft nl and wl blk 13, Rincon sub, Geo. Sargent sur, ab 231, 4 mi n Gregory, lcn.

STARR COUNTY—Howard Bass' Hayden et al 1, s½ blk 4, sur 7, porc 80, 5½ mi ne Rio Grande City, sd 1336 ft. Barbara Oil Co.'s W. H. Pardue 1, 1168-ac tr, El Javali gr, 3¼ mi w Cuevitas field, abnd 2660 ft. F. Davenport and Slick-Urschel's Slick Est. 1, sec 485, 20 mi ne Rio Grande City, dr 4570 ft. South Coast Oil Corp.'s Isabel S. Lopez 1, lot 11, sh 29-B, porc 80, 10 mi n Rio Grande City, dr 3050 ft. Sun Oil Co.'s J. F. Orr 1, por 103, Juris of Mier, Gonzales sur, 4½ mi s Cuevitas field, ru to sp.

VICTORIA COUNTY—Magnolia's Beck 1, 132.8-ac tr, T. N. O. sur 1, 4½ mi nw Telferner, dr 3578 ft, dst 3509-12 ft, 200 lbs. pressure, 120 ft oil and 120 ft sw, 7 minutes. Plymouth Oil Co.'s J. J. Welder 1, 6371.9-ac tr, S. Belding sur, ab 141, 7 mi e Nursery, ds stuck 6648 ft, pb and sdtr; R. H. Welder 1, 6371.9-ac lse, F. H. & M. G. RR sur 15, 9 mi n Nursery, near DeWitt County line, abnd 6181 ft.

WEBB COUNTY—American Texas Oil Co.'s McKendrick 1, por 46, 6 mi fr Rio Grande, dk. French Oil Corp.'s Daniel C. Garcia 1, sur 1121, dr 1065 ft. Frank J. Gravis' Yeager-Strohman 12, 330 ft n and w of nw cor United 40-ac tr in Sh 5, Las Animas Gr, Albercas area, lcn. Ivan Howard et al's Frost Nat'l Bank 3, sur 475, 5 mi w Mirando City, lcn; Frost Nat'l Bank 4, 330 ft n & 330 ft w of nw cor sec 123, but in sec 770, sp. LuTex Oil Co.'s Lone Star Construction Co. 1-A, 7850 ft nwl, 750 ft swl por 12, in blk 26, SS & B sub, por 12, 13, 14, ru. Mid-Continent Pet Corp. and Oklahoma Co.'s Laubscher 1, sec 1394, 7 mi nw Webb, coring 3000 ft, dst 2979-89 ft, show fresh water & distillate. H. E. Nessley's A. M. Bruni 1, sur 449, 3 mi s Killiam extension to Cole field, 8 mi sw Bruni, abnd 3528 ft. Rowan & Hope's A. M. Bruni 1, 330 ft nl and el blk 2, sec 857, 5 mi se Mirando City, lcn. Wilcox

WILLIAMSON COUNTY—H. F. Goff's H. W. Kunze 1, 75-ac tr, J. J. Liendo sur, still sd 1330 ft. L. D. House et al's Millie Stewart 1, 151-acr tr, M. de la Villa sur, 11 mi e Bartlett, ru & sd. C. R. Richardson's E. Zeischang 1, 200 ft e line, 300 ft n line, 100 ac tr, Hamilton & White, sur, lcn.

ZAPATA COUNTY—B. M. Alexander Jr.'s Fee 1, 250-ac lse, 5 mi n Lopeno, lcn. W. C.

ZAVALLA COUNTY—H. F. Wilcox's T. J. Gillam 1, sw ¼ blk A-2, GWT & T Ry sur, 6 mi ne Batesville, ru.

TEXAS GULF COAST

AUSTIN COUNTY—R. L. Hopkins and J. T. McGregor et al's Reineche 1, se of Bellville, J. Stephenson sur, mim.

BRAZORIA COUNTY — Beaty, Bowles & Borsodie's Truska 1, Agloa prospect, H.&T.B. sur, No. 6, dr lime 6415 ft.

BURLESON COUNTY—Red Bank's Grann 1, Chriesman area, E. Sante sur, dr shale 6080 ft.

CHAMBERS COUNTY — Salt Dome Oil Corp.'s Lawrence 1-A, Cotton Lake area, S. Barrow sur, dr surface casing 165 ft. Sun's Acom 1, Seabreeze area, T.&N.O. sur, section 128, making gas and distillate 8111 ft; same operator's White Estate 2, same area, same survey, running 9⅝-in csg 8715 ft.

GALVESTON COUNTY—Shell's Maco Stewart 1, Hitchcock prospect, J. Spillman sur, fsh 10,460 ft.

COLORADO COUNTY—Sterling's South 1, Garwood area, I.&G.N. sur, sec 41, showed salt water on drill stem test at 6042 ft.

FORT BEND COUNTY—Sloan & Zook's J. A. Brown 1, Pilant Lake prospect, Barrett & Harris sur, coring shale 6175 ft.

HARDIN COUNTY — Republic's Brooks 2, Silsbee area, J. W. Brooks sur, dr shale 5984 ft; same operator's Brooks 3, Silsbee area; J. W. Brooks sur, dr shale 2309 ft.

HARRIS COUNTY—B. A. Farrell and J. B. Cox et al's Bender Estate 1, w of Humble field, M. W. Travis sur, dk. Geo. Lawrence et al's Zapp 1, Bammel prospect, J. Farwell sur, woc 3048 ft.

JEFFERSON COUNTY—D. B. McDaniel et al's J. N. Gilbert 1, Gilbert Ranch area, J. Ricord sur, ru. Sun's Broussard 2, Labelle area, W. B. Burton sur, dr shale 7607 ft.

LIBERTY COUNTY—J. G. Mayo et al's Dunnam 1, Rumayor prospect, J. Cherry sur, spudded.

MATAGORDA COUNTY—Continental's Robbins 1, Citrus Grove area, C. Franz sur, ru; same operator's Hawkins 1, Sheppards Mott prospect, D. McCarthy sur, mim. Hammond Exploration Co.'s Croker 1, South Bay City area, E. Hall sur, dr shale 8009 ft. Strake's Sargent 1, Poole Ranch area, Mrs. L. E. Parker sur, dr shale and lime 6695 ft. Sun's Craig 2, Hawkinsville, J. Williams sur, dr salt 1640 ft. Tettes & Harris' Pierce Estate 1, Blessing prospect, J. W. E. Wallace sur, sd 7723 ft.

MONTGOMERY COUNTY—W. W. Chapman's Thomas Foster Lumber Co. 1, Willis area, D. Pevehouse sur, dr shale 1305 ft.

POLK COUNTY—J. K. Dorrance's Wings 1, nw part of county, I.&G.N. sur, dr shale 2865 ft. Peyton Brothers' Kirby & West B-1, Ace area, J. S. Thomas sur, dk.

TYLER COUNTY—Republic's Hurd Fee 1, se of Spurger field, Norman Hurd sur, dr shale 5846 ft.

WASHINGTON COUNTY — Stapper Pet. Corp.'s Hoxie 1, S. Sample sur, lcn. Sun's Lauter 1, Clay Creek area, N. Clay sur, swabbing 7470 ft.

WHARTON COUNTY—P. B. Watson's Sweet 1, Magnet area, I. Smith & McKenzie sur, tearing down rig 5400 ft. Felmont's General Mitchell 1, Spanish Camp prospect, D. Wade sur, fsh 8065 ft. Shell's Seydler 1, Southeast Wharton prospect, F. Biggam sur, dr shale 5101 ft.

WYOMING

ALBANY COUNTY—Hal Blakeman's Chappel 1, cne nw 33-21n-76w, dr 1653 ft. California Co.'s Vallie G. Bath 1, ne sw 1-16n-76w, dr 2211 ft.

BIG HORN COUNTY—J. W. Bales' Zeisman 1, csw sw 23-49n-89w, dr 960 ft.

CARBON COUNTY — General Petroleum Corporation's Union Pacific 1, sw sw sw 5-19n-83w, dr 5260 ft in Morrison formation. Medicine Bow Oil Co.'s Hintze-Government 1, cne se 18-22n-78w, dr in Morrison formation at 1800 ft.

GOSHEN COUNTY—Ohio Oil Co.'s Joseph A. Waggoner 1, cne ne 14-28n-63w, dr 2395 ft. Well has had intermittent streaks of lime which were barren.

LARAMIE COUNTY—Amerada Petroleum Corporation's Morton 1, csw sw 13-13n-68w, ur 900 ft off bottom at 7052 ft. Operators are preparing to set string of 11¾ in csg weighing 62 pounds per ft on bottom at 7052 ft. This will be the heaviest string of casing ever set in the Rocky Mountain region.

NIOBRARA COUNTY — Adams-Louisiana Co. and H. V. Elwell's San Joss 1, csl se nw ing at 4584 ft. Well had top of third Sundance at 4532 ft. Sand was cored at 4546-64 ft and sand and water at 4564-84 ft. Adams-Louisiana Co. and H. V. Elwell's San Joss 1, csl se nw 1-34n-66w, dr 1980 ft.

PARK COUNTY—General Petroleum Corporation's Government 1, sw nw nw 33-47n-100w, dr 3316 ft.

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SMALL ENGINES
Hercules Motors Corporation

The Hercules Motors Corporation, Canton, Ohio, in announcing the "QX" series engines and power units, has added two models to its present line of modern and advanced heavy duty four and six cylinder engines. The "QX" series meets the requirements of the trade for a small six cylinder heavy duty engine. The two new models are the "QXA," with a 3⅛ x 4⅛ bore and stroke and 190-inch displacement, and the "QXB" with a 3¼ x 4⅛ bore and stroke and 205-inch displacement.

These two models are identical in general design and appearance and the majority of the parts are interchangeable, the only difference being in the bores and the parts affected thereby. The maximum torque of the "QXA" is 130 foot pounds at 1000 revolutions per minute and of the "QXB" is 135 foot pounds at 1000 revolution per minute. Both models peak at 3000 revolutions per minute at which speed the "QXA" develops the 55.5 horsepower and the "QXB" develops 60 horsepower.

TRAILER HOUSES
Stephens Hiway Home Trailer Company

A. J. Stevens and Company, Kansas City, Missouri, has announced a special auto trailer that is especially suited to oil field requirements. Pipe line workers, drillers and field men were considered when the trailer house was designed and suggestions of drilling contractors affected the construction. These small houses on wheels have appointments comparable to fine hotels and homes and cost little more than makeshift field shanties, the manufacturer claims.

The trailer homes are manufactured to meet the demands of both the low and high priced markets. Three models, 14, 16 and 18 feet in length, are priced at modest levels, while the custom built types are built for special purposes. The standard models have pullman-type seats that convert into two beds for four people. They have a fold-away table and stove, drainboard, sink, running water, ice box, china closet, linen cabinet, dual lighting system for battery or current outlets, heater, all-weather insulation, wardrobe closet, hat rack, and in the large model toilet and bathing facilities.

GULF COAST MAP
Zingery Map Company

Zingery Map Company, Second National Bank Building, Houston, has recently prepared regional base maps covering the entire Gulf Coast district from New Orleans to Mexico. The maps come in four sections so that they are sufficiently large to permit additional data to be placed upon them.

Regional base map (Section 1) extends from Lake Charles, Louisiana, to Angleton in Brazoria County, Texas. The scale is 10,000 feet to the inch. The map is 4½ x 8 feet. It shows accurate location and depth of dry holes, towns, railroads, drainage, oil fields, all surveys including names of larger ones.

Regional base map (Section 2) extends from Angleton, Brazoria County, Texas, to Alice in Jim Wells County. The same scale, price, size and data applies as on the map for Section 1.

Regional base map (Section 3) extends from Alice in Jim Wells County southwest to Mexico. This map is not quite ready but is expected to be completed before January 1. The price and size of this map will be furnished on request. It includes the same data, etc., as the other two sectional regional maps.

The South Louisiana base map extends from the Texas line east to a point 12 miles east of New Orleans, and from the Coast north to Alexandria. The scale is 16,000 feet to the inch. The size is 4½ feet by 7 feet. Price is $25 on paper and $35 on linen. It shows the same data as the base maps described above.

PIPE TOOL
Beaver Pipe Tools, Inc.

Beaver Pipe Tools, Inc., Warren, Ohio, is offering a new model ratchet type pipe threading tool that should appeal to oil and gas companies. Three sets of dies each threading two sizes (¼ and ⅜) (½ and ¾) (1 and 1¼), cover the range, are quickly changed, and are fully adjustable for cutting standard oversize or undersize threads. A three-way, self-centering chuck centers the pipe, and there are no bushings or grip screws. Threading dies are well above the face of the stock and are easy to oil.

This Week with the Industry's EQUIPMENT SUPPLIERS

Axelson Representatives Make Hurried European Trip

A. G. Haglund and D. H. Barnwell of Axelson Manufacturing Company are expected back in the United States the latter part of November after a brief business trip to Europe. They flew from Los Angeles to New York, boarded the dirigible Hindenburg for Germany, returned to London, to the Hague, flew to Roumania, back to Sweden, and will return to Los Angeles, all in a period of approximately four weeks.

McDermond Returns to Maracaibo Headquarters

C. C. McDermond, The Venezuelan representative of the Axelson Manufacturing Company for many years, has returned to Maracaibo. After spending two months in Los Angeles at the Axelson factory, two months in the Mid-Continent fields, and a month on the Atlantic Seaboard, McDermond is again resuming his activities in the Venezuela territory. He reports business conditions as favorable in the neighboring South American Republics, particularly as regards activities of American business interests.

O'Connell Heads Westinghouse Denver Office

Leland D. O'Connell, who has centered much of his active business career in the Southwest, has been appointed manager of Westinghouse Electric and Manufacturing Company's Denver, Colorado, office.

Born in Audubon, Iowa, O'Connell attended the Los Angeles Manual Arts High School, and later entered the University of Southern California taking a course in electrical engineering. Leaving college for the naval air service in 1918, he became a pilot. A year later he joined the Westinghouse Electric and Manufacturing Company and after completing the company's Graduate Apprenticeship Course was sent to El Paso office and later to Los Angeles. In 1931 he was made manager of Westinghouse's Tulsa office and two years later was promoted to manager of the industrial division of the company's southwest district with headquarters in St. Louis. Brought to Westinghouse headquarters in 1934, O'Connell was placed in charge of air conditioning until it was transferred to the merchandising division, and as the recent manager of welding activities he introduced the "cross-field" welder.

Warner & Swasey Opens Houston Office

Warner & Swasey Company has opened an office and warehouse at 409 Velasco Street, Houston. L. M. Cole, district manager, will be in charge, while J. V. Fal will assist.

Ruberoid Company Is Enlarging St. Louis Plant

As part of a general program of plant development, which has involved expenditures of approximately $1,500,000 in the past two years, The Ruberoid Company, manufacturers of asphalt and asbestos building and roofing products, has completed plans and is clearing the ground for a $250,000 extension to its plant at St. Louis, Missouri, it has been announced by Herbert Abraham, president.

Completion of the extension, which will increase the capacity of the St. Louis plant by 50 percent, is expected by June of next year. The enlarged plant will provide employment for 200 additional men, bringing the total employed at St. Louis to around 675. In the meantime construction work will provide employment at different times for from 25 to 200 men.

The manufacturing facilities of the St. Louis plant are largely devoted to the production of shingles, sidings, and other

building products of asbestos-cement; and the purpose of the new addition is to increase the output of these and other Ruberoid asbestos products for rapid distribution at advantageous freight rates throughout the West and Middle West.

The $1,500,000 already spent in the company's current program of plant development has been for major extensions in its plants at South Bound Brook, N. J., Joliet, Ill., Erie, Pa., and Mobile, Ala. A $200,000 extension to the Mobile plant for the manufacture of asbestos cement building products, on which construction was started in May, has been completed and is now in operation. In addition to the St. Louis plant and the four mentioned, the company operates large plants at Baltimore, Md., and Millis, Mass.

PAT WEEMS

Axelson Representative In Roumania Named

Axelson Manufacturing Company has announced the appointment of Norbert Winter as its Roumania factory representative, effective October 1. Winter, who is well known in Roumanian and Polish oil fields, will make his headquarters at Bucharest after spending three months at the factory in Los Angeles. His work will involve both sales and service on all products sold by Axelson Manufacturing Company in foreign areas.

Pat Weems Heads Pipe Department of Producers

Pat Weems of Tulsa has been appointed vice president and manager tubular department of Producers Pipe & Supply Company of Tulsa, Okla.

For the past 12 years, he has been associated with International Supply Company. Eight years of these 12 in charge of the pipe department.

Pat is known as a lover, breeder and trainer of some of the finest and best bred bird dogs in the southwest. He is also an active and persistent skeet shooter but does not brag about his score.

CHARLES HALM

Reda Pump Company Opens Tyler Office

Reda Pump Company, manufacturers of the Reda electrical bottom-hole centrifugal oil well pump, has opened a sales office at 207 E. Front Street, Tyler, Texas. Charles Halm has been assigned to take charge of the new office.

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"Yes,' 'answered Mr. Dustin Stax. "We captains of industry are just waking up to the advantages that art affords if you know how to buy and when to sell."

Definition

Do you know what the line of least resistance is, sweet one?

Yes!

That's right.

Mean

I hate that man.

Why, what has happened? I thought that you liked him so much.

He said I couldn't whistle and just to show him I could, I puckered up my mouth just as sweet and round, and what do you think he did?

How should I know?

Well, the fool just let me whistle.

Tough

"What are you doing for a living now?"

"Oh, I'm dancing in a night club with abandon."

"Yeah? I'm dancing without one."

Coughing to a Purpose

When the Pendashes came home from Sunday church services, Mrs. Pendash remarked: "Did you hear Sarah Lumpkin coughing and coughing this morning? Everybody turned to look at her. She must have a terrible cold?"

"No," said Jeb, the country's oldest lawyer and keenest wit. "She didn't have a cold; she just had a new fall hat."

Thanks

Pastor (treating small boy to soda): Now what do you say, my little man?

Small Boy: A-a-a-h-h!

Pastor: Is that the proper way to thank a person for a gift?

Small Boy: That's what Dad says when Uncle Jim gives him a drink.

Might Have At That

A clergyman, at a dinner, had listened to a talkative young man who had much to say on Darwin and his "Origin of Species."

"I can't see," argued the young whippersnapper, "what difference it would make to me if my grandfather was an ape."

"No," commented the clergyman, "I can't see that it would. But it must have made a great difference to your grandmother."

Not Available

"Frequent water drinking," says the specialist, "prevents you from getting stiff in the joints."

"Yes, but some of the joints don't serve water."

What a Man

"Tell me, sir. Who was braver than Lancelot, wiser than Socrates, more honest than Lincoln, wittier than Mark Twain, and more handsome than Apollo?"

"My wife's first husband."

Q. E. D.

Math Prof.: "If there are 48 states in the Union, and super-heated steam equals the distance from Bombay to Paris, what is my age?"

Frosh: "Forty-four, sir."

"Correct, and how did you prove that?"

"Well, I have a brother who is 22 and he is only half nuts."

Too Many Z's

Jimmie was very proud of the fact that he got 100 in spelling nearly every day. One day he came home quite disconsolate.

"What is the matter?" asked the lad's mother.

"I missed a word in spelling," returned Jimmie.

"What was the trouble?"

"Oh, I just put too many Zs in scissors."

Provocation

Your wife says you struck her, Uncle Josh. Have you any excuse to offer?

Ah suttingly has, Jedge. While Ah was prayin' fo' rain fo' mah crops, she was prayin' fo' fair wedder 'cause she was gwine to wash.

Fowl Proceedings

You stole no chickens?

No, sir.

No geese?

No, sir.

Any turkey?

No, sir.

Case dismissed.

Boy, I was scared you'd say ducks.

Relic

The farmer had watched the motorist working on his second hand car for about an hour.

"What are you looking at?" asked the motorist. "Is this the first motor car you ever saw?"

"No," was the dry reply, "but it's very much like it."

Romance!

Mrs. Lee—How did you make the acquaintance of your husband?

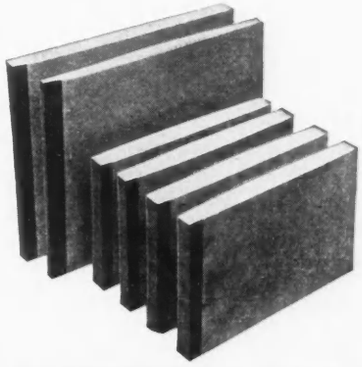
Mrs. Tee—It was very romantic. I met him for the first time when he ran over my first husband with his auto as we were crossing the street.

Poker

"My husband won a thousand dollars at poker the other night and he split with me."

"He gave you half?"

"No; he took his thousand and left."



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After carefully reviewing the forms of a number of oil companies, The Gulf Publishing Company has made up nine standard forms listed above and has produced these in such quantities as to enable oil companies to secure them at substantial savings.

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Frick-Reid Supply Corp.	41

G

Gardner-Denver Co.	—
The Garlock Packing Co.	—
Gaso Pump & Burner Manufacturing Co.	—
Gearench Manufacturing Co.	—
General Electric Co.	—
L. H. Gilmer Co.	—
Globe Oil Tools Co.	—
Goodall Rubber Co. of Texas	—
Goodall Semi-Metallic Hose & Manufacturing Co.	—
B. F. Goodrich Rubber Co.	—
Goodyear Tire & Rubber Co.	—
H. P. Gott Manufacturing Co.	75
Gray-Kerotest	—
Gray Tool Co.	29
Green Head Bit & Supply Co.	—
Greene Tweed & Co.	—
The Guiberson Corp.	—
Gulf Coast Machine & Supply Co.	—
Gulf Envelope Co.	—
Gulf Publishing Company	81
Gulf States Utilities	—
Gustin-Bacon Co.	—

H

W. F. Hall	—
Halliburton Oil Well Cementing Co.	—
Hardway & Cathey	78
Harrisburg Steel Corp.	—
Harnischfeger Sales Corp.	—
Haynes Stellite Co.	—
Hazard Wire Rope Co.	23
C. M. Heeter Sons & Co.	—
Hercules Tool Co.	—
Hewitt Rubber Corp.	—
Highway Trailer Co.	—
Hinderliter Tool Co.	—
Hoard Exploration Co.	—
Hopper Machine Works	—
The Chas. N. Hough Manufacturing Co.	—
Houston Ready-Cut House Co.	—
Hughes Tool Co.	Fourth Cover
Humble Oil & Refining Co.	42
Hyatt Roller Bearing Co.	—
Hydril Co.	First Cover

I

Ingersoll-Rand Co.	—
International Derrick & Equipment Co.	—
International Geophysics, Inc.	—
International Harvester Co.	—
The International Nickel Co.	—
International Supply Co.	—

J

Byron Jackson Co.	—
Jarecki Manufacturing Co.	—
Jensen Brothers Manufacturing Co.	72
Johns-Manville	—
S. M. Jones Co.	4
Jones & Laughlin Steel Corp.	—
J. & S. Carburetor Co.	—

K

Kerotest Manufacturing Co.	39
Kibele Manufacturing Co.	—

L

Lamb Piston Sales Co.	—
Landis Machine Co.	—
Larkin Packer Co.	—
The Lane-Wells Co.	—
The Layne & Bowler Co.	—
A. Leschen & Sons Rope Co.	—
M. J. Lewis Oil Well Service	—
The Lincoln Electric Co.	—
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Lucey Boiler & Manufacturing Corp.	—
Neal Lucey Co.	—
Ludlow Valve Manufacturing Co.	—
Lufkin Foundry & Machine Co.	—

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MacClatchie Manufacturing Co.	57
Maintenance Engineering Corp.	60
D. S. Mair Machinery Corp.	—
Martin-Decker Corp.	—
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McIntosh & Seymour Corp.	—
J. H. McEvoy & Co.	—
Merchants Photo Service	—
Merco Nordstrom Valve Co.	—
Miller Sand Pump Co.	—
Mission Manufacturing Co.	—
M. K. T. Lines	—
Lee C. Moore & Co.	—
Muskogee Iron Works	—

N

National Bank of Tulsa	—
National Exploration Co.	—
The National Supply Co.	19
National Tube Co.	—
Naylor Pipe Co.	—
New Deal Specialty Co.	—
Norma-Hoffman Bearings Corp.	—
Norwell-Wilder Supply Co.	—

O

Walter O'Bannon Co.	—
O.C.S. Manufacturing Co.	—
Oil Center Tool Co.	—
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Oil Well Supply Co.	—
Oil-World Exposition, Inc.	—
Oklahoma Biltmore Hotel	40
Oklahoma Portland Cement Co.	—
The Oster Manufacturing Co.	—
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P

The Parkersburg Rig & Reel Co.	6
Patterson-Ballagh Corp.	—
Pelican Well Tool & Supply Co.	67
Petroleum Electric Power Club	—
Petroleum Rectifying Co.	Third Cover
Petty Geophysical Engineering Co.	—
The Pierce Governor Co.	—
Pittsburgh Equitable Meter Co.	—
Pittsburgh Steel Co.	—
Portable Rig Co.	—
Producers Supply & Tool Co.	—

R

Rector Well Equipment Co.	—
Reed Roller Bit Co.	—
Joseph Reid Gas Engine Co.	—
The Republic Rubber Co.	—
Republic Steel Corp.	—
Rieber Laboratories	—
The Ridge Tool Co.	—
Rio Pipe & Supply Co.	—
Walter Ruska & Co.	—

S

J. A. Schley	78
Schlumberger Well Surveying Corp.	27
Security Engineering Co.	61
Seismic Explorations, Inc.	—
Shaffer Tool Works	—
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Sinclair Refining Co.	—
SKF Industries, Inc.	—
A. O. Smith Corp.	—
E. M. Smith Co.	—
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Spang & Co.	—
Spang, Chalfant & Co.	—
Sperry-Sun Well Surveying Co.	—
Stanley Tools	—
Star Drilling Machine Co.	—
A. J. Stephens & Co.	—
Stevens Hotel	—
The Sullivan Co.	—

T

Texas Electric Steel Castings Co.	—
Texas Iron Works	—
Texas Rubber Specialty Corp.	—
Texas Steel Co.	—
Thermoid Rubber Co.	—
The Timken Roller Bearing Co.	—
Tips Engine Works	—
Titusville Iron Works Co.	—
Edgar Tobin Aerial Surveys	—
Tretolite Co.	—
Trimont Manufacturing Co.	—
Trinity Portland Cement Co.	—
Tulsa Chamber of Commerce	—
Twin Disc Clutch Co.	—

U

Union Carbide & Carbon Corp.	—
Union Wire Rope Co.	—
United States Rubber Products, Inc.	—
United States Steel Corp.	—
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V

Volcano Burner Co.	—

W

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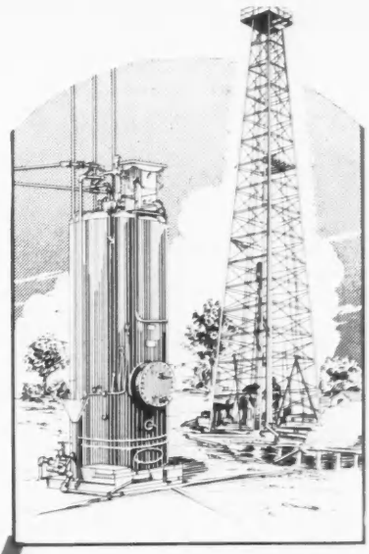
Waukesha Motor Co.	—
Western Electric Service	—
Westinghouse Electric & Mfg. Co.	—
The Wheland Co.	—
Wickwire-Spencer Steel Co.	31
J. H. Williams & Co.	—
Williamsport Wire Rope Co.	—
Wilson-Snyder Manufacturing Co.	—
Wilson Manufacturing Co.	—
Wilson Supply Company	—
WKM Co.	—
Worthington Pump & Machinery Corp.	—

Y

Yale & Towne Manufacturing Co.	—
Youngstown Sheet & Tube Co.	—



Analyze Your Treating Costs TO INSURE GENUINE ECONOMY

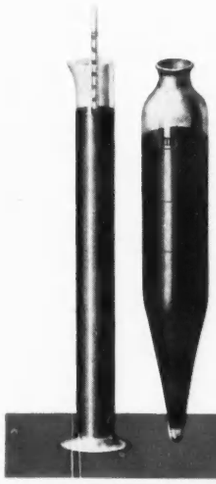
The usual method of computing dehydration costs is in cents per barrel. However, this procedure can be very misleading unless correctly applied. A recent example clearly illustrates this possibility.

One cent per barrel was given as the cost of treating the production of a certain lease by a well known method. An analysis by Petreco engineers disclosed that less than half the crude produced was being dehydrated, while the total monthly cost of treating was applied to the total production of the lease; with the result that the true cost per barrel was more than double the amount estimated, as follows:

	Method Used	Correct Method
Total Production Of Lease	1,000 bbls.	1,000 bbls.
Production Dehydrated	500 "	500 "
Total Cost Of Treating	$10.00	$10.00
Cost Per Barrel	.01*	.02**

* Figured on total production of 1,000 bbls. when less than half the production was dehydrated. ** Figured on actual volume of production dehydrated.

To insure highest economy, producers should carefully analyze treating costs and apply these costs precisely to the volume of crude dehydrated. Petreco engineers are available for assistance in this respect at all times, without obligation.



Petreco Electromatic Dehydration reduces treating costs to minimum and is adapted to single wells or an entire lease.

MAXIMUM EFFICIENCY AT MINIMUM COST

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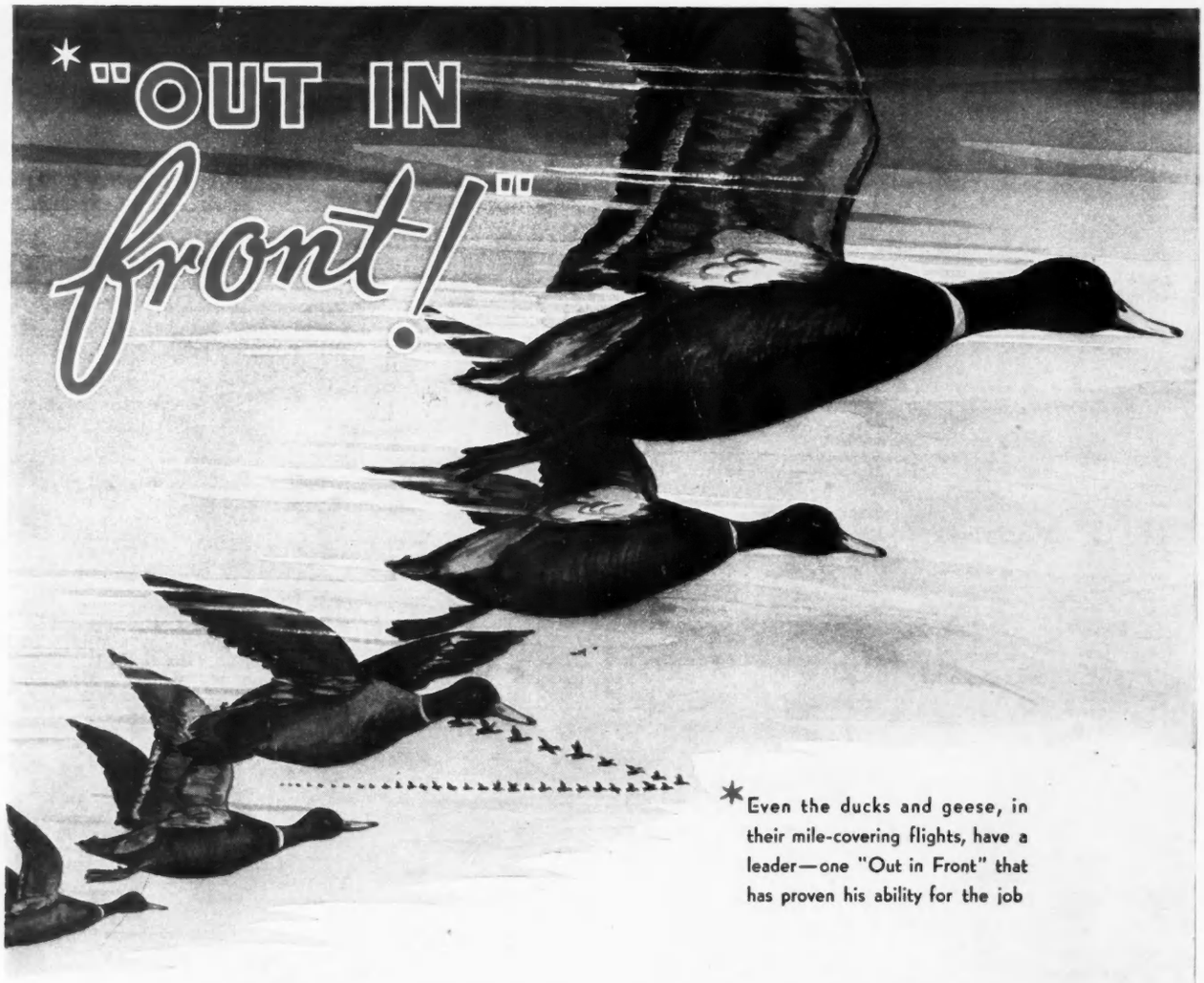
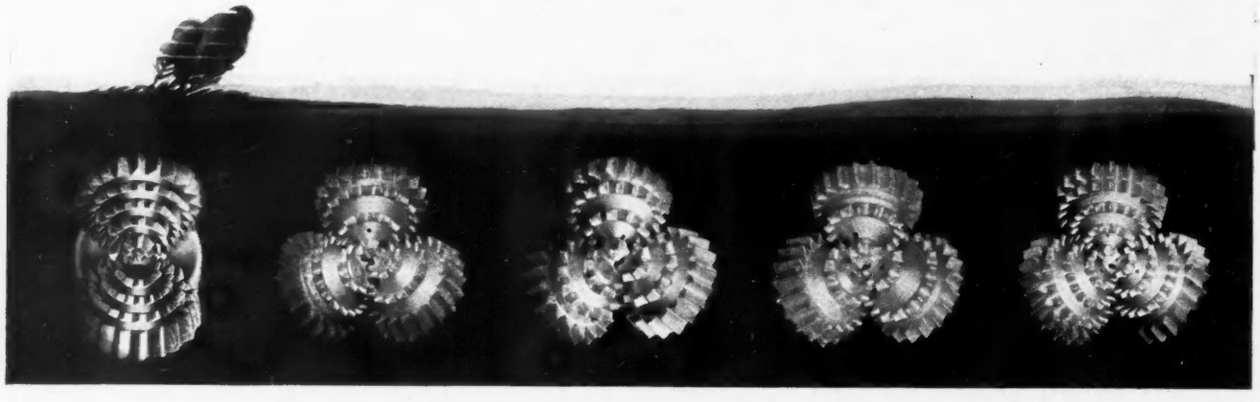


*Even the ducks and geese, in their mile-covering flights, have a leader—one "Out in Front" that has proven his ability for the job

*In Rock Bit Design and Manufacture, Hughes Tool Company always has been "Out in Front." This has been due to constant research through continuous laboratory experiments and field performance.

Today—HUGHES "TAILOR-MADE" ROCK BITS, especially designed for specific formations, rotary speeds and drilling weights, offer the Industry the maximum in Rock Bit economy. They are a major development in assuring more hole per bit—in quicker time and at a worthwhile saving of expensive round trips.

Your Hughes "Tailor-Made" Rock Bits are far "Out in Front" in field performance.

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